THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—36TH YEAR. SYDNEY, SATURDAY, DECEMBER 31, 1949. No. 27.

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CENTENARIES OF FORTY-EIGHT.

By HARVEY SUTTON,
Sydney.

CENTENARIES of forty-eight began nineteen centuries ago with Archigenes of Apamea (Syria), born in A.D. 48 (A.D. 48 to A.D. 117). Like many other Greek physicians, he came from a remote city of the far-flung Roman Empire. He was a pupil of Claudius Agathinos of Sparta, who later founded the eclectic school. In the time of the Trajan (A.D. 98 to A.D. 117) Archigenes had become one of the greatest physicians of Imperial Rome. Albutt links him with Asklepiades, Soranus and Galen "as beacons for their own age and for all ages". Soranus was a younger contemporary.

At first Archigenes was a pneumatist. The pneumatists held the pneuma, "the breath of life" or soul or vital principle, as the basis of health. The pneuma showed itself in body energy, growth and psychic energy. If it was upset, dyscrasia or disease was brought about. Pulse lore, diet and physical medicine were taught, as well as an interesting physiology and some pathology.

Later Archigenes as an eclectic managed to fuse pneumatism with the best in methodism and empiricism. It is not easy to follow the ideas behind these systems. They were breakaways from dogmatism, whose theories laid down hard and fast principles, but tended to replace science by erudition.

The empirics threw overboard the philosophical approach, relying on practical results from the relief of symptoms. They believed in doing something and prided themselves on their common sense. They relied on personal experience, traditional findings and analogy.

The methodists boiled down medicine into the idea of relaxation and constriction. The latter was seen in acute disease decided by stoppage of the pores. The former explained chronic disease by too free passage through the pores. Tonics would help the *status laxus*, bleeding and massage the *status strictus*. "*Contraria contrariis*" was their motto. Of course, there was also a mixed status with mixed treatment.

The eclectics were "free lances" who reserved the right to choose what they thought best and aim at the blend of the best of each system. All these schools represent ways of thought which are by no means unknown today.

Archigenes is now recognized as the main source of later writers, Aretaeus (third century), Aelius (sixth century) and others. As Sir Thomas Browne puts it, "many subsequent writers did not hesitate to plume themselves with other's feathers".

Galen held Archigenes in high esteem and mentions his work "on the symptoms of fevers". Oribasius notes his books "On the Acute and Chronic Fevers" and their "Treatment". Other titles quoted are "On the Seats of Disease" and "On Drugs".

A list of his first or improved descriptions is impressive. They include hemiplegia (on the side opposite to the lesion), Syriac ulcer (pharyngeal diphtheria), smallpox, tetanus, tuberculosis, pneumonia with pleurisy, diabetes (and polyuria), epilepsy, paraplegia, elephantiasis, and the use of hellebore.

Archigenes deserves special mention for his enlightened handling of mental disease. After seeing the priests of Cybele flagellating and cutting themselves as they danced before the idol, he said: "They are insane; do not leave them to those bloody gods of the East. Send them to me." (This almost has an Australian touch!) His treatment was rest, full feeding and music.

Archigenes is the first who taught real sympathy for the incurable. Like other Greeks he did not look on surgery as a thing apart. The Greek practice was to amputate only for gangrene; he also cut off the limb for growths, injuries and even deformities. His technique was to expel the blood from the limb by firm bandaging and then apply a tourniquet just above the line of incision. Another method was to cut down on the vessels and ligate them;

smaller vessels were transfixed by a sharp hook and twisted round and round. He operated for cancer of the breast and of the uterus (cervix) and was the first to note the ligaments of the uterus, comparing the broad ligaments to the sails of a boat. He was familiar with vaginal specula, typically four-bladed with a screw to open out the blades. He also operated for stone in the bladder. In extrauterine abscess he placed the patient in the lithotomy position. With his speculum he was able to see the cervix in a good light. Then with a scalpel or trocar he released the pus.

In Rome Juvenal tells of him as a fashionable physician. Centuries later Alexander of Tralles writes that he was "God given above all others".

The first mention of the University of Salerno dates back to A.D. 848.

Nine centuries ago Albiruni of Persia (973 to 1048) died, an ornament of the Arabian period. He showed his versatility not only as a distinguished physician, but also as an astronomer, mathematician, physicist, geographer and historian. His best known work is his "Chronology of Ancient Nations". Using Archimedes's method he determined accurately the specific gravity of eighteen precious metals and stones.

Seven centuries ago the universities of Piacenza and of Siena were founded (1248) during the great educational movement in the thirteenth century. Ibn-al-Baitar (1197 to 1248) of Malaga, an eminent botanist, wrote "The Corpus of Simples", one of the most complete in *materia medica*. Fourteen hundred drugs are described, three hundred new. It shows the important contribution of the Arabs to pharmacy.

The year 1348 is indeed an *annus mirabilis et terribilis* in the history of mankind. The pest or the great mortality as our forefathers called it, the Black Death or bubonic plague as it is spoken of today, reached Europe. A few years before it had left its fastnesses in China and India bent on a "walkabout". Along the caravan routes to the west it spread death and disaster. Finally a vessel from the Crimea brought sick patients to Venice and the European epidemic began, killing right and left. Rapidly it spread to other countries, reaching England the same year (1348). Never before or since has mankind had to face such a destroyer. The Pope at the time reckoned that twenty-five millions died in the first great epidemic—half the population of Europe. After this first great mass killing, plague continued to wipe off much of the natural increase and to shorten the average length of life right on till 1665.

The ordinary history book gives plague scant notice. Actually it had a profound effect on human society and on the social life of England. The pestilence hit the professions hard. The priest who was called to the dying, the physician who attended the sick, fell victims themselves and their corpses were thrown together into the common grave.

Its effect on farm labourers was hardly less severe. We hear of whole villages being wiped out. The demand for labourers became keen and great numbers went off to places offering higher wages. The *Statute of Labourers*, that held a man to his own parish, was defied. Much of the land was untilled and famine followed on the heels of plague. Every class suffered heavily. Boccaccio tells of the collapse of morality and the social chaos of the times. Indeed, the whole structure of society was thrown into the melting pot.

Feudalism passed away and chivalry never fully recovered from the blow and was finished off by gunpowder.

In England the villein, virtually a serf, became a yeoman farmer, and English emerged to become the language of the nation.

Before that English kings like Richard the Lion Heart, the knights, the clergy and educated people talked Norman-French. After the plague English was taught in schools, and with Chaucer English literature has its birth.

The great pestilence heralded the end of mediævalism and the dawn of the Renaissance was soon to follow.

Nor did medicine fail to show its influence. The doctor found himself in a deadly dilemma. His wealthy patients had followed his advice: "*Fuge cito, vade longe, rede tarde*"—"Get away quickly, go away as far as you can and take your time coming back." His income collapsed, yet many doctors stuck to their posts and many died.

Guy de Chauliac tells of this in his description of the plague at Avignon (1348). Both bubonic and pneumonic types appeared.

> With blood spitting no one could approach or even see a patient without taking the disease. The father did not visit the son nor the son the father. Charity was dead and hope abandoned. . . .
>
> As for me, in order to avoid infamy I did not dare absent myself, but with continuous fear preserved myself.

(De Chauliac used aloes as a purge, bleedings, senna to comfort the heart, Armenian bole to soothe the humours and acid things like vinegar to resist putrefaction.)

> Nevertheless towards the end of the epidemic I fell ill with a continuous fever and a swelling in the groin and was ill for six weeks. I was in such danger that my companions believed that I would die, but the abscess became ripe and was treated as I have said and I escaped by the grace of God.

The treatment for the bubo was to poultice it with figs and cooked onions peeled and mixed with yeast and butter.

The medical faculty of Paris recommended fumigation with incense and camomile in rooms and public places. Dry meat without condiments and fruit were advised. They banned poultry and fatty meat, olive oil, baths and sexual intercourse; the last three might be fatal.

The rooms and the patient were washed with rose-water and vinegar and the doctor dressed carefully beforehand. Gauntlets and long boots were favoured together with a long gown. In his hand he held an aromatic sponge—cloves and cinnamon in vinegar—before his nose.

Open windows ventilated the room. Later a mask with windows for the eyes and a beak for the nose was added.

No one knew how the disease spread. Panic and mob psychology ruled. The astrologers pointed to the conjunction of the three planets, Saturn, Jupiter and Mars, March 24, 1345; but this seemed too long an interval beforehand. Some held it to be a miasm; others blamed those they hated—the Jews and lepers were murdered right and left; they were accused of poisoning the wells. The torture chamber supplied a terrible "third degree", and by suggestion the ring of suspects could readily be extended. Lynch law and burning of people, house and all, even anticipated the legal process.

In later centuries experience with epidemics led to Fracastoro's book on contagion (1546) and to Kircher's "*Scrutinium pestis*" (1658), in both of which we see the idea of minute living seeds.

One great gain was the development of quarantine and with it of organized public control. Before this visitation the accepted idea was that plague, as its name suggests, was the chastisement by Divine power of disobedient humanity. Interference with the act of God was obviously impious. Even in the days of Hippocrates plague seemed to have been outside the field of the physician. But plague looked like extinction, and the approved attitude of resignation and prayer was in part at least broken by the instinct of self-preservation.

This new attitude on the part of the community was a great advance on the purely exclusive regulations against leprosy.

The realization of the importance of contacts—those who were apparently healthy, but had been living with the sick—was another great advance. Isolation of the sick and fumigation of the sick room had come down from ancient times. Separation of contacts was now added to our control. The beginning was in Venice (1348). Venice was the great port of Europe for the caravan trade, which came on by boat from Aleppo or from the Crimea, and Venice was wide open to every eastern pestilence. In 1348 the Doge set up a guard on visiting ships and provided for patients outside the city area. Ragusa in Dalmatia

(1377) insisted on suspect travellers spending thirty days apart. The north Italian cities who lived on trade were in a difficult position. The fugitives from the plague in Venice were kept outside the walls. When the plague died down, how soon could the regular flow of traffic be resumed? No one knew, so they appointed what we would call a royal commission of the learned. These were mainly theologians and lawyers and knew no more than anyone else why the disease spread. But the symbolism of numbers came to their aid.

Today we have no conception of the symbolic value of numbers. In ancient times numbers had a value of their own far beyond their numerical estimate.

A search of the Scriptures revealed that the number for separation and penance was forty, and so forty days was made the period for separation of suspects or healthy contacts—a *quarantenaria* or *quaranta giorni*. This lucky strike worked and was universally adopted. Marseilles seems to have erected the first quarantine station (1383), but Venice had already thoroughly organized its public health control.

Plague, too, had a salutary effect on leprosy. This disease had been widespread in the twelfth century. By the fifteenth century it had almost disappeared. Drastic measures of isolation could hardly have done this, because they encourage concealment; but plague and the mobs dealt severely with wayfarers. No doubt, too, the better organized food supplies and warding off of famines greatly helped.

Bubonic plague was to take a heavy toll for over three centuries. Every few years epidemics which killed thousands affected London and other large cities. The dead bodies thrown out into the street would be hastily collected into coffins or carts at night and taken outside the city to be dumped into Great Plague pits. The underground tunnel to Liverpool Station had to carve its way through great masses of skulls and bones of a plague burial ground. Much of the supply of bones for medical students comes from the almost inexhaustible plague pits outside Paris.

One outstanding physician who fell victim to the plague was Gentile da Foligno, a leader of the Paduan school. As a student he sat at the feet of Pietro d'Abano (1250 to 1316), who created the tradition of teaching at Padua which Gentile followed. Pietro sought to harmonize philosophy and medicine in his *"Consilia controversiarum"*. The Inquisition attacked him as a heretic. This did not deter crowds of students from attending his lectures, in which he taught the Arabist doctrines of Averroes and Avicenna. Gentile, when he first attended as a student, was so enthralled that he fell on his knees crying out: "O Holy Temple!"

In 1341 da Foligno was one of the first to conduct a necropsy at Padua. He followed the example of Mondino at Bologna, whose text-book on anatomy was in general use. In 1348 he wrote a famous series of *"Consilia contra pestilentiam"* and soon after succumbed to the disease himself. To Gentile must be given the credit of first noting gall-stones. His Jewish origin does not explain his first name.

Two university foundations date back six centuries to 1348: the University of Prague, which was then authorized by Pope Clement VI as a *studium generale*, and Gonville Hall and Pembroke College, Cambridge.

The celebration at Prague this year failed to attract many visitors from western universities to "behind the Iron Curtain".

Gonville Hall gained its medical interest when John Caius refounded it as Gonville and Caius College. His tomb is still to be seen in the chapel with the epitaphs *"Vivit post funera virtus"* and *"Fui Caius"*.

Pembroke has no special medical link, but helped to fill up the dreadful gap the Black Death left in the ranks of the clergy.

P. P. Vergerio (1348 to 1419), of Capodistria, wrote on physical culture in the training of the adolescent, the first of a series of contributions from Renaissance Italy to the work of the gymnasium.

In 1448 may be noted the introduction of printing, an epoch-making development which greatly speeded up the diffusion of knowledge and the creation of libraries. The first medical book to be printed in English was, however, not printed till 1485—"A Passing Gode Lityll Boke necessarye and Behoveful Agenst the Pestilence".

In 1548 appeared the first work on anatomy, in English—"The English Man's Treasure", by Thomas Vicary (1490 to 1561). It is largely a transcript from a fourteenth century manuscript giving the ideas of Lanfranc, of Guy de Chauliac and of Mondeville.

As first master of the United Barber Surgeon Company we can see Vicary receiving the Royal Charter of the company from "bluff King Hal" in the famous picture by Holbein still in the possession of the Barber's Company of London. No example of the edition now exists, strange to say.

In 1548 Charles V was forced to issue an edict to protect the status of reputable surgeons "against all manner of runagates or vagabonds, shameless in countenance, lewd in disposition, brutish in judgement and understanding", so William Clowes tells us, "such as tinkers, tooth drawers, peddlers, ostlers, . . . horse gelders, horse leeches, idiots, applesquires, broom men, bawds, witches, conjurers, soothsayers, sow gelders, rogues, ratcatchers, runagates and proctors of spittle houses"—a truly motley crew. Many of these were able to do skilled operations, such as couching for cataract, cutting for the stone, operating for hernia (often castration) and ovariotomy, but evidently Charles was satisfied that they had become a public nuisance.

Stevinus of Holland was born this year (1548 to 1620) and deserves mention. He gave hydrostatics and mechanics their real beginning, and also the conception of fluid pressure which led centuries later to the study and measurement of blood pressure. He fairly knocked out the idea of perpetual motion. He understood the resolution of forces, though he did not actually use the parallelogram of forces. He actually carried out the experiment usually ascribed to Galileo of dropping bodies of different weight from a height. His freedom from tradition and his practical inventiveness were shown by his new notation, which is the basis of modern mathematical method.

Several important publications date back to 1548.

Hermolaus Barbarus (1454 to 1493) had translated into Latin the works of Aristotle. This translation was printed and published in Basel by Oporini, the printer who had published the famous "Rubrica" of Vesalius (1543). Conrad Gesner was the editor—Barbarus had been a leading humanist, and was well known as a poet, physician, scholar, ambassador and cardinal before the age of forty years. Linacre saw much of him during his Italian tour.

Jerome Cardan (Hieronymus Cardanus, 1501 to 1576) published in 1548 his fifth *"libellus"* dealing with astronomy and astrology. In it appear the horoscopes of himself and of Vesalius. Boerhaave summed up Cardan well:

Sapientior nemo ubi sapit.
Dementior ubi errat.

("None wiser where he is wise; none more foolish where he is mistaken.")

Cardan was a mathematician of note. His treatises on arithmetic and algebra are outstanding. He was also a physician with a European reputation.

Linacre's translation of Galen's book "On the Natural Faculties" was published by Rouellius in Leyden (1548).

Another of the many translations of this author about this time is that by Sebastian Scrofa (1548) of Galen's *"De remediis parabilibus"*. Lacuna de Segoire brought out in the same year his epitome of the complete works of the same author.

The year 1548 can hardly be left without a mention of Giordano Bruno of Nola, Italy (1548 to 1600). He was trained as a Dominican, but his unorthodox views forced him to leave Italy. From 1553 to 1556 he lived in England and later in Paris. Eventually the Inquisition caught up with him in Rome (1593), and after seven years' imprisonment he was burnt at the stake (February 17, 1600). His work *"De l'infinito universo"* (1584) came as a great shock to those who viewed the earth as the centre of the spheres.

Following the Copernican theory he held that the universe must be infinite and animated. The idea of innumerable worlds was too much for his time. Incidentally, he pointed out that the sea which is near active volcanoes must have some connexion with them.

The year 1648 seems like modern times. That year died Marin Mersenne of Paris (1588 to 1648), a Minorite friar, who as friend and correspondent of men of science, especially Descartes, brought together the learned men of France. His circle was the forerunner of the great scientific societies in France and in England. His translations of Galileo and others helped to spread scientific knowledge.

Singer considers that Descartes, Francis Bacon, Gassendi and Mersenne completely changed the outlook of philosophy, releasing it from its mediæval bonds.

Caspar Hoffmann (1572 to 1648) published a Latin version of Aristotle "On the Spleen" (1615).

Events in 1648.

The "*Museum metallicum*", part of the "*Storia Naturale*", an encyclopædia of biology, was published. It was written by Ulysses Aldrovandino of Bologna (1522 to 1605). Aldrovandino excelled as a comparative anatomist and spent a fortune on his scientific collections. His work was held in high esteem by William Harvey and by Sir Thomas Browne. He was professor for forty years at Bologna and founded the Botanical Garden there (1567). He was perhaps the first to study the incubating hen egg.

A curious work, "*De Secretis Mulierum*", was republished by Janssen at Amsterdam. This is an apocryphal work dealing with cosmetics attributed to Albertus Magnus (1193 to 1280), a Dominican monk, the most learned man of the Middle Ages. As a follower and interpreter of Aristotle, he was interested in ideas of fœtal development and of generation. He thought the planets might influence the fœtus. He noted rupture of the hymen and recorded perineal tears into the rectum. He taught at Paris (1222 to 1248) and earned the title of "*Doctor universalis*".

"Alchemy and Paracelsus" was written by Hermannus Conringius (1606 to 1681). A versatile professor of Bologna, he taught in all four faculties. He strongly supported Harvey's ideas on the circulation, but the iatrochemists like Willis and Mayow were his bane.

In "*Unum necessarium*" (1648) John Cook was one of the first to discuss the relief of the poor with free medical service.

J. B. Du Terte, a French priest in the Antilles, first described yellow fever in its outbreaks at Guadeloupe (1635 to 1648).

Jan Baptist van Helmont, a Belgian chemist (1577 to 1644), was a Capuchin friar before taking up medicine. After his death his son published his collected writings—"*Ortus medicinæ*" ("The Fount of Medicine")—in Amsterdam (1648). He was a follower of Paracelsus.

Guillaume Le Pois (William Piso) reported in 1648 on medical products in the Indies. He introduced ipecacuanha into Europe. In his "Natural History of Brazil" he included medical studies and was the first to describe yaws (bubas) and separate it from syphilis.

Quercetanus—Joseph Du Chesne (1544 to 1609), *Sieur de la Violette*, was physician to Henri IV. His work on "curious and rare secrets—metallic and mineral medicine" appeared in 1648. As a spagyrist he sought to supplement ancient drugs by modern chemical substances. He annoyed the faculty especially when, having been trained as an apothecary, he compounded elixirs of life, water of Theriaca, antiapoplectic and antiscorbutic water and finally iron wine. In his defence he urged: "In the name of what religion to condemn today remedies drawn from metals and minerals if these are prepared according to the laws of nature and of art and not by an ignorant empiric or a charlatan?"

The "*Exercitatio anatomica de motu cordis et sanguinis*", written by William Harvey, was published in Rotterdam by J. de Back (1648).

"Chirologia", by John Bulwer, appeared in 1648. "The art of manuall rhetorique under the name of Chironomia" is its subtitle—the managing of the hands in speaking. Bulwer describes himself as a Chirosopher. In 1648 he applied his method to "teaching the Deafe and the Dumbe to heare and to speake" in his "Philocophus, the Deafe and Dumbe man's friend"—"to inable one with an observant Eie to Heare what any one speaks by the moving of his lips". He was the first to advocate "an academy for the mute".

Bulwer described the muscles of expression in the face and head (1649) in "Pathomyotomia—the muscles of the affections of the mind". In his "Anthropometamorphosus" (1653) he attacked "the monstrosities that have appeared to disfigure the Humane Fabric". The alternative title to this book is: "The artificial changling, historically presented in the mad and cruell Gallantry, foolish Bravery, ridiculous Beauty, filthy Fineness and loathsome Loveliness of most Nations fashioning and altering their Bodies from the mould intended by Nature."

He is a pioneer in the education of the deaf and dumb.

Johann Rudolf Glauber, of Karlstadt, Bavaria (1604 to 1668), first prepared fuming hydrochloric acid (1648), distilling sulphuric acid and sea salt. He is best known for his Glauber's salts (sodium sulphate). Oliver Cromwell thought him "an arrant knave". Glauber urged the use of chemical preparations in place of animal excreta.

Athanasius Kircher (1602 to 1680) of Fulda described the ear trumpet.

Francesco Redi (1626 to 1697) published a manuscript by Pifozzo (1289), which wrote of spectacles as of recent origin. Redi was born at Arezzo and is best known by his disproof of spontaneous generation of life (1668). He was the first parasitologist and studied the reproductive organs of Ascaris. He studied over 400 species. He made full use (especially on insects) of controls. In 1664 appeared his systematic work on snake poisons, which he showed had to be injected under the skin. His saying "*Omne vivum ex vivo*" was used by Harvey.

Other events were the foundation of Bamberg University (1648). Unfortunately medical education was still self-satisfied and stereotyped under the retarding influence of a dead and alien language.

The year 1648 was marked by a great epidemic in Germany of ergotism. "Saint Anthony's fire", as it was called, was one of the scourges of the Middle Ages and had caused serious trouble for 800 years. The accounts even as far back as 857 tell of extremities dying after severe pains. For a long time it was confused with erysipelas. Not till 1547 was the spur of the fungus recognized as the cause.

The *Accademia del Cimento*—academy of experiment—dates back to 1648, fostered by the favour of Ferdinand II, Grand Duke of Tuscany. Physical experiments were carried out, but it was dissolved by the Grand Duke in 1667. Borelli and Redic were members. As a fully organized society it had a brief but brilliant activity of ten years.

The *Accademia del Limcei* (1603) and the Royal Society of London alone precede it.

Plague was last heard of in Scotland (1648). Aberdeen, where rats were unable to live, had always been free. In 1585 and right on to 1648 the following proclamation was put up:

> The magazines and magistrate erected these gibbets in case any infect person arrive or repair by sea or land to this burgh or in any case any indweller of this burgh receive house or harbour or give meat or drink to the infected person or persons the man be hangit and the woman drownit.

Births in 1648.

Frederik Dekkers of Leyden, physician and surgeon (1648 to 1720), first described albuminuria (1673). He detected it by the acetic acid and boiling method. Not, however, till 1827 was its occurrence explained by Bright. Dekkers was evidently puzzled by prolapse of the uterus. He blamed it on relaxation of the rugæ of the vagina because of an accumulation of pituitary humours (1673).

Joseph-Guichard Duverney, anatomist, of Paris (1648 to 1730), wrote the first treatise on otology (1683). He was

then professor of anatomy at the *Jardin des plantes*. His was the first full account of the structure, functions and diseases of the ear. He was the first to note the opening of the mastoid cells into the tympanic cavity. He described the structures ascribed to Bartholm—the glands of the vulva and vagina—and to Winslow—Winslow's foramen. In 1708 he reported the first case of combined intrauterine and extrauterine pregnancy—the patient had died of a tubal pregnancy, and a three months' fœtus was found in the uterus. Duverney's name is attached to fracture of the ilium just below the anterior superior spine.

Philippe Jacob Hartmann (1648 to 1707) wrote on *"Succini Prussici physica et civilis historia"*, with autopsies (1677).

Prospero Mandosio (1648 to 1709) wrote an historical description of the papal physicians.

Philippe Verheyen, Flemish anatomist (1648 to 1710), published his "Human Anatomy" (1693) at Louvain. This became the acknowledged text-book till after 1731. It included microscopic studies. Verheyen described the *vena stellata* in the renal cortex, the *fundus uteri* and the musculature and mucous membrane of the uterus and vagina. He keenly supported the life-saving properties of blood plasma.

Deaths in 1748.

Haemobonus Piso died in 1748. He had published in 1735 his studies on the four auxilia in medical treatment—blood-letting, purging, sweating and salivation.

Events in 1748.

Mark Akenside, physician, of London (1720 to 1770), is one of the medical poets. In 1748 he wrote "An Ode to the Earl of Huntington". His best known poem, begun at the age of seventeen years and published in 1743, is "The Pleasures of Imagination". His versified rhetoric, as it has been described, had quite a following in his day.

Lettsom tells us that at Saint Thomas's Hospital Akenside went round the wards, elegantly dressed, wearing a white wig and with a long sword at his side. Lettsom thought him unfeeling and supercilious, but his clinics when he condescended to give one were appreciated by his pupils. He was lame in one foot, owing, gossip said, to his father's having dropped his butcher's cleaver on it when Akenside was seven years old. To make up for the shortening he wore a high heel. "I never knew him to spit", says Lettsom, "nor would he allow any pupil to spit in his presence. One of them once accidentally did so who stood some distance behind him. The doctor instantly span round on his artificial heel and demanded who was the person that spat in his face." Lettsom evidently thought this rather fussy.

Bishop Berkeley, of Cloyne, wrote several tracts on tar water (1720 to 1748), which apparently he held to be the panacea and which had quite a vogue. Stephen Hales discussed it in a letter (1748).

Johann Jakob Brucker (1696 to 1770) published (1748) his *"Miscellanea"*, *"Historiæ"*, *"Philosophicæ" et cetera*, including the lives of three physicians.

William Cadogan, physician, of London (1711 to 1797), wrote: "An Essay on the Nursing and the Management of Children from their birth to three years of age. By a Physician. In a Letter to one of the Governors of the Foundling Hospital, 1748, London." This is one of the milestones in the progress of child welfare. The book ran into four editions in two years. It dealt on common-sense lines with infant feeding, care and management and did much to abolish swaddling. Our babies owe to Cadogan their freedom to kick their legs. Cadogan became physician to the Foundling Hospital in 1754. Richard Conyers, at that time physician to the hospital, reissued in 1748 his dissertation for his doctorate at Leyden (1729) entitled *"De morbis infantum"*. Cadogan's most popular book, which ran into ten editions in two years, was his "Dissertation on the Gout" (1771). It did not add to his popularity among his medical colleagues. He was rash enough to suggest that one bottle of wine should be enough for one day. At the time everyone with any pretensions to be a gentleman aimed at being a three-bottle man. Cadogan was a great friend of Garrick, and was present at the death bed of that great actor.

John Fothergill, of London (1712 to 1780), a Quaker physician and the leading practitioner of his day, in "An Account of the Sore Throat Attended with Ulcers" (1748), gave the first definite account of diphtheritic and scarlatinal sore throat. Other valuable clinical reports by Fothergill deal with the weather and diseases of London (1751 to 1754), facial neuralgia (1776) and sick headache (migraine) (1777 to 1784).

George Erhard Hamberger (1697 to 1755) described "in geometric fashion" the mechanism of respiration (1748, Jena).

(Sir) John Hill (1716 to 1775), British apothecary, actor and playwriter, translator and journalist, gained an M.D. degree (Saint Andrews) and a Swedish knighthood. He brought out (1748) his "Natural History of the World, Including the History of the Materia Medica, Pictoria and Tinctoria". He worked out the first Linnean flora of Britain.

David Hume, Scottish philosopher and historian (1711 to 1776), published in 1748 perhaps his best work, "Inquiry Concerning the Principles of Morals". He helped to build up a theory of knowledge and sought to apply the experimental method to the whole science of human nature. He made considerable contributions to the study of psychology. Karl Pearson and others followed Hume and Locke in insisting that only observable quantities are the proper subject of science.

Julien Offray de la Mettrie (1709 to 1751) brought out his "Human Machine" (1748), *"L'Homme machine"*. In this he sought to demonstrate the materialism of the soul. Fortunately for himself he put it out anonymously, for the good magistrates of Leyden burnt all the copies of the book they could lay their hands on because of its alleged heretical ideas.

Johann Friedrich Meckel the elder (1714 to 1774), of Wetzlar and Göttingen, wrote as his inaugural dissertation (1748) on the fifth pair of nerves. In this he first described the sphenopalatine (Meckel's) ganglion and the submaxillary ganglion. His son, P. F. T. Meckel, wrote on the labyrinth. His grandson, J.F., the younger Meckel, was an outstanding comparative anatomist. Meckel's diverticulum is named after him.

The *Collegium Medico-Chirurgicum* of Dresden was founded in 1748. It was one of the earliest attempts to raise the status in Germany of the army surgeon and to improve his training. Barbers, bone-setters, cataract couchers, cutters for the stone, sow gelders and even executioners supplied the surgical service of the day. The high reputation of the last-named for treating fractures was based, so it was said, on their experience with breaking bones with a sledge hammer in the torture chamber. Even the trained surgeons still shaved people (their chins, that is—not their pockets). But army arrangements were growing better and already the British army had its flying, fixed and convalescent hospitals.

The Royal Infirmary, Edinburgh, authorized in 1748 the first course of clinical lectures, the first given in Scotland. John Rutherford, professor of physic at the university, began this course which followed the model of the hospital at Leyden. Later on in 1819 these clinical lectures became very popular and the attendance large. Graves, who was a student then, tells us that the physician questioning the patient almost shouted at him, and the clinical clerk for the case repeated the patient's answers in a tone of voice equally loud. It "required an exertion almost stentorian to render this conversation between the physician and his patient audible by the more distant members of the class". This sounds quite up to date. Cullen, in 1748, had extended his teaching at Glasgow to include *materia medica* and botany in addition to medicine and chemistry. Later he changed over to Edinburgh and began his clinical lectures there in 1757. John Rutherford was a grandfather of Sir Walter Scott.

At Vienna obstetric instruction to midwives was initiated in 1748.

Charles Louis de Secondal, Baron de la Brède et de Montesquieu (1689 to 1755), made his fame by his *"L'esprit*

des lois" (1748). He studied the relationship laws ought to have with each government and its constitution, the manners, the climate, religion *et cetera.* Though temperate and tolerant and full of the desire for human betterment and happiness, his books were distinguished by inclusion in the *"Index librorum prohibitorum"*. Montesquieu was a great admirer of English ways, character and polity. He had an inspiring effect on Bentham and through him on public health.

John Turberville Needham, an English Catholic priest, published in 1748 a repetition of Redi's experiments (1668). After boiling mutton broth and placing it in a corked phial sealed in mastic, he found the fluid a few days later swarming with animalcules. This he held refuted Redi's arguments against spontaneous generation of life. Spallowzani showed that if air was excluded or the time of heating lengthened, this new life did not appear.

Johann Storch began his eight-volume work on female diseases (1748 to 1753). He had an extensive practice, but makes no mention of surgical procedures. For uterine conditions he used leeches in the vagina. He reported a case in which worms were passed *per vaginam.*

Suminski recognized the spermatozooids and egg cells on the prothallus of the fern.

Theodore Tronchin, of Geneva (1709 to 1781), a famous European physician of the eighteenth century, advocated the use of inoculation against smallpox in Holland (1748). His best work is on lead poisoning (colic of Poitou, 1757); he was interested in open-air treatment and in spinal suspension. He also published a paper on the external female genitals. A favourite pupil of Boerhaave and at one time physician to Voltaire, he became very wealthy and well known throughout Europe.

Joshua "Spot" Ward was a notorious quack and maker of patent medicines in eighteenth century London. He was in royal favour and patronized by the leaders of society, and accorded the distinction of being exempted by name from the penalties of the Act of 1748 controlling medical practice. However, the suggestion in his will that he should be buried in Westminster Abbey did not gain the approval of the Abbey authorities.

Aberdeen established its physic garden in 1748.

Births in 1748.

Hezekiah Beardsley, of Southington, Connecticut, wrote the first case report in America (1788) on congenital pyloric stenosis, "Scirrhus of the Pylorus in an Infant". Armstrong had noted it in 1777, but Beardsley gave a better description.

Jeremy Bentham, a great English jurist (1748 to 1832), was born in Houndsditch, London, the son of an attorney. He graduated at fifteen years of age. Blackstone had just codified the law in his "Commentaries on the Laws of England". Bentham recoiled from Blackstone's ideas that everything was right as right could be. In 1776 he published his "Fragment on Government", which was followed up (1789) by his larger work "Introduction to Principles of Morals and of Legislation". Blackstone wrote on law as it is; Bentham was interested in law as it should be. He held that the aim of all legislation was not to preserve the privileges of the few, but to seek "the greatest happiness of the greatest number". Punishment in itself was evil, and was admitted by him only so far as it might be needed to exclude some greater evil. To him we owe such ideas as "utilitarianism" and "codification".

Medicine and science in every generation are closely linked to the general background of thought and action, and Bentham had a profound influence on the thinkers of his time. He was, indeed, keenly interested in science. He had close friends in the medical profession, such as Southwood Smith. Singer considers that "no thinker had a larger share than Bentham in ushering in the subdivision of the sciences". He saw a parallel between the physical and social sciences, and both directly and indirectly influenced medical leaders of thought and action. He is "the direct begetter of the science of preventive medicine". In the late eighteenth century Blane in the navy and Pringle in the army had done much for the health of the men in the services, but the general principle that ruled in political spheres in the early nineteenth century was that of *"laissez-faire"*—"Do what you want to do"—"First come, first served, and the devil take the hindmost".

It was Bentham's secretary, Edwin Chadwick, who changed the face of "the Statute Book of England which at the accession of Queen Victoria (1837) included not a single act of sanitary intention save for some minor provisions for quarantine and vaccination" (Simon).

As a jurist Bentham was chiefly interested in new laws and legislation for health and in the creation of new colonies in Australia. He inspired the development of modern legislation in these fruitful fields. He believed in inspectability as the basis for effective work for the new boards of health.

Naturally he retained an interest in penal establishments and designed the perfect plan for a prison, the Panopticon. This was built like a wheel with pavilions radiating out from the central observation post. The general idea has been widely adopted and modified into the design of present prisons. The prisoners received a basic ration, but could amplify this by their efforts in the workshops. For this plan Bentham received a honorarium from the British Parliament of £23,000.

In his will he left instructions for a public autopsy which his friend Southwood Smith carried out. Southwood Smith was a health leader and physician of note. University College Hospital, of which he was a benefactor, preserves in a glass case a wax portrait figure clad in the clothes Jeremy used to wear, with walking cane, straw hat and all—a remarkable memorial.

We owe far more to Bentham than we realize, whether we are citizens or practitioners or specialists.

Claude Louis Berthollet, born in the Savoy, was a French physician and chemist of note (1748 to 1822). Berthollet had been physician to the Duke of Orleans, yet he managed to survive the reign of terror and later was on Napoleon's scientific staff in Egypt. He realized the value of chlorine as a bleaching agent. Before that sheets were exposed for hours to the sunlight, even days, on the bleaching grounds. He realized that salts in solution always reacted on one another so as to form a less soluble salt if possible (Berthollet's law), and invented Berthollet's fluid—a mixture of solutions of sodium chloride and sodium hypochlorite. Potassium chlorate is his discovery, and he included in his *"Statique chimique"* the study of reversible reactions. Other researches of his were on prussic acid and fulminating silver. For years he had been director of the Gobelins, where he studied the dyes needed for its tapestries. During the terror Lavoisier, his friend and fellow chemist, lost his head, for "The Republic had no need of savants". Berthollet escaped, perhaps because, as Humphry Davy who visited him tells us, "he had no airs but many graces", and also because of his outstanding activities in conserving the internal resources of the Republic at a critical period when every nation's hand was against her.

Sir Charles Blagden, of London (1748 to 1820), carried out experiments in a heated room (1775), which were published by the Royal Society. They are the first observations of the importance of perspiration in the control of body temperature. Blagden was an army surgeon and a friend of Cavendish and of Sir Joseph Banks. He "did a good job" as secretary of the Royal Society (1784 to 1797).

William Brown was born in Haddingtonshire, Scotland (1748 to 1792), and graduated as a doctor of medicine at Edinburgh. His father had been born in Maryland, but had been living in Scotland for some years. Brown settled down into practice in Virginia. In 1778 he became physician general in the army and brought out the first American Pharmacopœia—*"Pharmacopœia simpliciorum et Efficaciorum in usum Nosocomi Militaris ad federatum Americæ civitatum"*.

Adair Crawford, of England (1748 to 1795), published in 1779 the earliest experiments on the measurement of body heat (calorimetry) in animals.

Antoine Laurent de Jussieu, physician, of Aix, in Provence (1748 to 1836), was a scion of a remarkable

family, six members of which reached eminence in three generations. The grandfather, an apothecary of Lyons, had three sons, all of whom became great botanists, the next generation adding another three. Antoine Laurent developed his uncle's system based on Linnæus in his own "*Genera plantarum secundium ordines naturales disposita*" (1774). This emphasized the importance of stamens and pistils.

Nicolas Chambon de Montaux (1748 to 1826), in his "*Des maladies des femmes*" (1798), strongly supported the proposal to remove surgically ovarian cysts, and held that the fear of adhesions was unjustified. In 1701 Robert Houston, of Glasgow, had successfully incised and drained a large ovarian cyst; but it was not till 1809 that, greatly daring, the plucky Virginian, Ephraim McDowell, a pupil of Benjamin Bell, succeeded in removing an ovarian tumour with the aid of neither anæsthetic nor antiseptic. A Kentucky mob waited outside the patient's home, ready to "string him up" if she died. Mrs. Crawford kept them at bay by singing hymns while the surgeon worked. She was then aged forty-seven years and survived the operation for thirty-one years, outliving her surgeon by ten years.

Jacopo Penada, of Padua (1748 to 1828), included in the cases he wrote up in 1793 a particular case of duodenal ulcer.

François Xavier Schwediauer, physician, of Austria (1748 to 1824), described achillodynia before Albert who gave it its name.

Félix Vicq-d'Azyr (1748 to 1794) was the greatest comparative anatomist of the eighteen century. He held the post of permanent secretary of the Paris Academy of Medicine. He especially studied the morphology of the brain, the vocal cords, and the flexor and extensor muscles. On these he was the leading authority of his day. He took a great interest in the comparative study of function and the principle of correlation. In 1786 appeared his dictionary of anatomical terms. His works in six volumes were published in 1805. A number of structures are named after him, such as Vicq-d'Azyr's band or line, the same as Baillarger's band in the calcarine fissure, and Vicy-d'Azyr's bundle between the thalamus and the mammillary body, the *centrum semiovale*, the *foramen caecum*. His operation is cricothyreoid laryngotomy.

Deaths in 1848.

Baron Jöns Jakob Berzelius, a Swedish chemist (1779 to 1848), worked out a quantitative method for estimating albumin in urine *et cetera*. Acetic acid is used to precipitate the albumin and the precipitate is weighed. Berzélius's test for albumin in the urine employs metaphosphoric acid. He isolated biliverdin (1840). He made a special study of catalysis and isomerism. Berzelius was the most famed chemist of his day and the most honoured in his own country. Chemical nomenclature as we know it today we owe to him. He realized that groups of atoms—radicles—could link up with others as an underlying part of a series of compounds. For over thirty years he made exact determinations of thousands of substances.

Georges Bouilly, surgeon, of Paris, died in 1848. He devised his special operation for excision of the lining membrane of the uterus, a part being left on each side to prevent atresia.

James Constantine Carpue (1764 to 1848) helped to bring in electrotherapy. He shares with Dieffenbach von Graefe the credit for reviving plastic surgery (1816), taking the Hindu method of rhinoplasty Tagliacozzi had used. He wrote the history of the high operation for stone and was interested in artistic anatomy.

Samuel Cooper, surgeon, of London (1780 to 1848), served as surgeon at the Battle of Waterloo and became professor of surgery at University College Hospital. He wrote an important dictionary of the practice of surgery which had an international circulation in French, German and Italian translations. It is the first of sound merit in English.

Samuel Guthrie, M.D., of Blomfield, Massachusetts (1782 to 1848), was a pioneer in the creation of chloroform. By distilling alcohol with chlorinated lime he discovered "chloric ether" or "sweet whiskey" (at Jewettsville, New York, in 1831). Independently in the same year Soubeiran had produced *éther bichlorique* in Paris and Liebig in Germany *Chlorkohlenstoff*.

Antoine Jacques Louis Jourdan (1788 to 1848) was the author of an important medical biography in seven volumes (1820 to 1825).

Gustav Adolf Michaelis (1798 to 1848) published (1851) "*Das enge Becken*", the most important study of the contracted pelvis since that of Deventer one hundred and fifty years before. He was the first to study the flat pelvis and especially the rhachitic types of pelvic deformity, and was a pioneer in the study of the architecture of the pelvis.

John Laws Milton, dermatologist, of Edinburgh (1320 to 1848), first described *urticaria gigans*, giant urticaria (1876). Quincke renamed it angioneurotic œdema (1882).

Robert Perry, of the Glasgow Royal Infirmary (1783 to 1848), if not the first, was one of the first to realize the difference between typhus and typhoid fever (January, 1836). John Reid had already reported on the differences he found, A. P. Stewart and Gerhard (1837) had extended these studies, and Sir William Jenner in 1848 completed the work. After his statement on the differentiation of the two diseases, statistics about them become for the first time reliable.

James Cowles Prichard, physician, of Bristol (1786 to 1848), brought out the first (and only) volume of "A Treatise on Diseases of the Nervous System" (1822). He also wrote the "Physical History of Man" (1813), in the second volume of which he forecast the theory of evolution (1826). He is one of the founders of modern anthropology. In his "Treatise on Insanity" (1835) is the first reference to moral insanity and to circular insanity. In 1844 he published an atlas of illustrations of his work on anthropology.

James Scott, of Royston, Hertfordshire (1779 to 1848), was a favourite pupil of Blizard at the London Hospital. His exceptionally large practice at Bromley (for many years over £10,000 a year) gained him fame as Scott of Bromley. He always did his own dressings, applying the principle of mechanical support in chronic disease—hence Scott's dressing, which gave rest and pressure.

John Stearns, of New York (1770 to 1848), reported the first use of ergot—*Pulvis Parturiens*—for "quickening" labour (1808).

William Twining, English physician in India (1813 to 1848), introduced a pill much used for dysentery—a compound of calomel, bluepill and ipecacuanha—many years before emetin was proved of value in amœbic dysentery.

Horace Wells, dentist, of Hartford, Connecticut, first used nitrous oxide as an anæsthetic in dentistry (1844). He had seen Dr. E. E. Marcy, a local surgeon, cut out a cyst from the scalp of a patient who had been given ether to inhale. He was warned, however, that ether might be dangerous to life. Colton, a pupil of Turner, of University College, London, before his popular lectures used to have volunteers up to the platform to inhale "laughing gas" for the amusement of all. Humphry Davy had long before shown the effects of nitrous oxide in bringing about unconsciousness. Wells was struck by the fact that one of the subjects fell heavily, yet apparently felt no pain. Wells got a bag of the gas from Colton, and arranged for Rigg, a fellow dentist, to be present (December 11, 1844). On Wells's breathing the gas his head fell back, and Riggs extracted a tooth. When Wells recovered consciousness he said: "A new era in tooth-pulling." With W. T. G. Morton, his friend and former partner, Wells staged a demonstration before Dr. Warren and his students; but the gas-bag was taken off too soon and the two were hissed for their failure. Later Wells had a death in his dental practice, which so preyed on his mind that he became unbalanced and gave up practice. He was arrested for throwing vitriol on dresses and eventually took his own life (1848).

Events in 1848.

Henry Bence-Jones, of London (1814 to 1873), noted albumose in the urine of patients with softening of the bones. On the addition of acetic acid a precipitate appeared, but dissolved on boiling and reappeared on cooling (1848—myelopathic albumosuria).

Claude Bernard, of Villefranche (1813 to 1878), the greatest physiologist France has produced, described the glycogenic function of the liver (1848). Although he was a man of great imagination himself, his advice was that the scientist should divest himself of imagination with his overcoat on entering the laboratory. He warned the medical student against the slavery of systems, whether philosophic or scientific. One of his greatest concepts is the *milieu intérieur*, the world within us or internal environment, kept constant in spite of external changes.

Henry Jacob Bigelow, of Boston, Massachusetts (1818 to 1890), wrote in 1848 a compendium of the history of the discovery of ether and chloroform as anæsthetics. He gave the priority honours for ether to Morton. He had been an eye witness on "Ether Day" (October 16, 1846). His vigorous support and prompt publication of his experience (1846) did much to encourage the use of these anæsthetics throughout the world. As a surgeon he described the importance of the ilio-femoral ligament, the Y-ligament of Bigelow, in reducing hip dislocations. He was the first American to excise the hip joint. He introduced litholopaxy, crushing stones in the bladder with his lithotrite and washing out the pieces. He should not be confused with Jacob Bigelow (1787 to 1879), a physician and botanist of note, whose essay on self-limited diseases helped to save us from excessive drugging.

Theodore Ludwig William Bischoff (1807 to 1882) in 1848 did important original work on the development of the rabbit. Bischoff's crown is the inner zone of the epithelial capsule of the ovum. He was the first to prove the presence of free carbon dioxide and oxygen in the blood (1837). Urea he used as a test of metabolism (1842) and he studied the laws of inanition (1862). Blot (1848), Lewer (1843) and Roth (1844) drew attention to albuminuria in the pregnant as an association of eclampsia.

Sir William Bowman, a noted English ophthalmologist (1816 to 1892), studied the microscopic structure of the human eye and retina and his work was published in the *Medical Gazette* (1848). He is best known for his histological discoveries, such as Bowman's capsule in the kidney cortex.

Dr. Buchanan, appointed resident medical officer to Marlborough (1848), appears to be the first school medical officer in modern times. He was replaced soon after by Fergus, who held the post with distinction for thirty-five years. Winchester has the historical priority, however. In 1656 a "sick house", "Bethsed", was built in the grounds with lodging for a resident medical officer, Thomas Grant, who died in 1661. In 1553 Christ's Hospital at its foundation appointed five surgeons at £15 each to visit the sick boys, while in 1559 a learned and experienced physician was appointed to treat the boys and the staff, and they had also a resident apothecary.

Johann Ludwig Choulant (1791 to 1861), of Dresden, professor of medicine, published (1848) "Mineral Springs of Wolkenstein". His best work (1852) was on the history and bibliography of anatomical illustration. He did not take kindly to the new equipment, stethoscope and pleximeter—"trombone and anvil". He was a great scholar and medical historian.

Walter Channing (1786 to 1876) set out the methods and value of etherization in childbirth (1848). He was a pioneer in this application of anæsthesia.

Anastasio Chinchilla y Piqueras (1801 to 1886) completed his four volumes (1841 to 1848) on the history of medicine and the biography and bibliography of physicians in Spain.

Johann Friedrich Dieffenbach (1792 to 1847) wrote a great work on operative surgery, published 1845 to 1848.

Mrs. Dorothea Lynde Dix, of the United States of America, helped by her efforts to establish the New Jersey State Asylum at Trenton (1848). This was one only of 32 asylums founded as the direct result of her energetic propaganda on behalf of the insane. Her work attracted considerable attention and support, not only in America, but in Britain. (However, I can find no link between her and our own "Dorothy Dix".)

Franz Cornelis Donders, of Tilburg and Utrecht (1818 to 1889), wrote in 1848 with Jansen one of his earlier papers discussing the changes in the arterial wall which give rise to spontaneous aneurysms. He and Jansen published it in the *Archives for Physiological Therapeutics*. Donders is best known for his work on convergence and accommodation. He was the first to use prismatic glasses (cylinders) in astigmatism. He wrote a valuable treatise on the physiology of speech (1870), and measured the reaction time of a psychical process. He first used the term "stenopeic spectacles".

Hermann Christian von Fehling (1812 to 1885) published a paper on the quantitative estimation of sugar in urine (1848), in which his well-known test was first described.

John Gairdner (1790 to 1876) wrote on the system of clinical instruction in the Royal Infirmary, Edinburgh (1848), and also wrote an historical sketch of the Royal College of Surgeons of Edinburgh (1860).

(Sir) William Tennant Gairdner, of Edinburgh (1824 to 1907), wrote on the pathology of the kidney (1848—waxy disease *et cetera*), the first of many clinical contributions. His brief account of cardiac murmurs (1861) convinced British physicians of the presence of the presystolic murmur in mitral stenosis, which Fauvel had reported in 1843. Gairdner's disease was the name given to the attacks of cardiac pain and mental distress in *angina pectoris*. Gairdner's sign is bell-metal resonance. In 1850 Gairdner gave a good account of bronchiectasis. "Old G", as he was affectionately known, later turned his attention to public health, and his greatest work is "Public Health in Relation to Air and Water".

(Sir) Alfred Baring Gould, of London (1819 to 1907), in his "Observations on Certain Pathological Conditions of the Blood and Urine in Gout, Rheumatism and Bright's Disease" (1848), introduced the thread test in gout. His extensive studies of gout and rheumatic gout appeared in 1859. He should not be confused with (Sir) Archibald Edward Garrod (1857 to 1936), of alkaptonuria fame.

Robert James Graves, of Dublin (1796 to 1853), published his clinical lectures (1848). Descriptions of angioneurotic œdema, scleroderma and erythromelalgia came from his pen (1843 to 1848). He had already (1835) given a convincing picture of exophthalmic goitre (Graves's disease). Graves and William Stokes led the Dublin school, which included brilliant men like Adams, Cheyne, Colles, Corrigan, Rynd and Wallace. Graves transformed the clinical teaching to the students and he insisted on kindness to the hospital patients.

With the help of watches with second hands, students learned to record the pulse rate as a routine measure. He noted the pinpoint pupil and supported the feverish patient's strength by adequate nourishment instead of rigorous starvation. Asked one day what he would like as his epitaph—the writing of these was at that time a popular pastime and long perorations in Latin were the fashion—Graves replied that three words would suffice for him: "He fed fevers."

Heinrich Haeser, of Jena (1811 to 1884), one of the greatest historians of medicine, wrote the history of Bright's disease in *Janus* (1848).

Henry Hancock (1809 to 1880) recorded in the *London Medical Gazette* (1848) the first successful operation for appendicitis with spreading peritonitis at Charing Cross Hospital.

S. L. Hardy and A. H. McClintock, obstetricians, of Dublin, helped to establish (1848) "the Dublin method" of external manual expression of the placenta.

Johann Florian Heller, of Vienna (1813 to 1871), invented a ureometer (1848) for the estimation of the specific gravity of urine. He was an authority on the examination of urine including calculi. His name is best known for the ring test for albumin, in which strong nitric acid is used, and for his tests for blood in urine and for glycosuria.

Hermann von Helmholz (1821 to 1894), of Potsdam, reached the highest level of achievement in both physics and physiology. His "Essay on the Conservation of Energy" (1847) and his "Handbook of Physiological Optics" are classics. In 1848 he demonstrated in the isolated muscle that muscles are the main source of animal

heat. "Medicine", he said, "was once the intellectual home in which I grew up."

Johann Ferdinand Martin Heyfelder, of Jena (1798 to 1869), established (1848) the use of ethyl chloride as an anæsthetic.

August Hirsch, of Berlin (1817 to 1894), wrote (1848) his first important work—*"Ueber der geographische Vorbereitung von Malarialfieber and Phthisis"*. His masterpiece is his "Handbook of Historical and Geographical Pathology" (1863), written when he was professor of medicine at Berlin. With Pettenkofer he formed a cholera commission for Germany (1873). "Later he became an authority on the medical biography of all nations." He helped to found the *Jahresbericht über der Fortschritte und Leistungen in der Medicin* and *Die deutschen Gesellschaft für offentliche Gesundheitspflege*.

Lucien Howe, a noted American ophthalmologist, wrote on the muscles of the eye.

Samuel G. Howe founded the first school in America for the feeble-minded (1848). His outstanding success was in the training of Laura Bridgman (a similar subject to Helen Keller).

Pierre Charles Huguier (1804 to 1873) first described (1848) *esthiomène* (the eating away of the vulva and perianal area as is seen in lymphogranuloma). Huguier's fossa is the depression in the tympanic cavity between the *fenestra rotunda* and the *fenestra ovalis*. He noted the canal in the Glaserian fissure through which comes out the *chorda tympani* nerve. His "circle" is the anastomosis at the junction of the cervix and the body of the uterus. He explained uterine prolapse as due to elongation of the supravaginal part of the cervix.

Stenhouse Kirke brought out his "Textbook on Physiology", our oldest existing text-book.

F. C. Knapp wrote one of the first modern text-books on the adulteration of foods.

Joseph Leidy, of Philadelphia (1823 to 1891), was a versatile and first-class naturalist who helped to found vertebrate palæontology. In 1848 he wrote on the comparative anatomy of the liver. He is best remembered for his recognition of *Trichina spiralis* in hogs (1846). He suggested that house flies might transmit infection from wound to wound (1871). In 1848 he also described for the first time the bacterial flora of the intestine.

Bernhard von Langenbeck, of Berlin (1810 to 1887), first noted the parasite of actinomycosis in man.

Emile Littré, of Paris (1801 to 1881), a very great medical scholar, translated Pliny's "Natural History".

Carl Frederic Ludwig, of Hesse (1816 to 1895), the leading teacher of physiology in the nineteenth century, published a paper on the nerves of the frog's heart, describing the ganglionic cells in the interauricular septum.

Jacques G. T. Maisonneuve, of Paris, an ingenious operator on the urinary tract, reported (1848) one of the few successes in repairing vesico-vaginal fistula before Sims solved this difficult problem.

Karl Friedrich Heinrich Marx, of Göttingen (1796 to 1877), was the first to bring to light (1848) Leonardo da Vinci's pioneer work in anatomical illustration. He was a keen student of medical paintings and wrote the biography of Herophilus amongst others.

G. Matthaeus published a Latin-German lexicon of medical terms.

William Henry Mortimer, in a popular essay on anæsthetic agents, discussed the action of chloroform, more especially in dental surgery.

Guéneau de Mussy, private physician to Louis-Philippe, then in exile, closely studied an outbreak of lead poisoning on the ex-king's estate at Clermont in England. He demonstrated the dangers of lead piping.

Joseph Charles Nott, of South Carolina (1804 to 1873), first put forward the idea that the mosquito might be the transmitter of yellow fever. His paper appeared in *The New Orleans Medical and Surgical Journal* (1848), and was a thoroughly logical presentation. Nott used to excise the *os coccyx* for coccygodynia.

Lorenz Oken (1779 to 1851) founded *Isis* in 1807 and its final volume appeared in 1848. It published many valuable biological articles. Political comments led at one time to Oken's being faced with the alternatives of giving up his professorship or ending the journal—the journal kept on. Oken was a follower of the Nature Philosophical School and edited it throughout. The history of the subjects and comparative studies were a feature of his journal.

Oppolzer made the first diagnosis in a clinic of coarctation of the aorta—stenosis of the aorta at the ductus. Malpighi had a post-mortem case (1760) and Paris fully described the morbid anatomy (1789). A. Meckel (1827) noted the anastomosing intercostals and rib erosions, while Legrand (1835) noted the reduced femoral pulsations and the much increased circulation in the chest.

(Sir) Richard Owen (1804 to 1902) wrote a fine paper (1848) "On the Archetype and Homologies of the Vertebrate Skeleton". In this he suggested how the skull originated, but Huxley dealt with this later. Owen's best work (1866 to 1868) is "On the Anatomy and Physiology of the Vertebrates" (three volumes). It was based entirely on personal observation.

Louis Pasteur (1822 to 1905) published his first important paper in 1848—his research on molecular dyssymmetry. For this paper, in which he studied the right-handed and left-handed crystals of tartaric acid, he was later awarded the Rumford medal of the Royal Society of London. The use he made of fermentation in these experiments led him to investigate the microorganisms inducing the change, and thus to carry out his epoch-making researches in microbiology. It is also the pioneer paper in stereochemistry. The arches over his tomb at the Pasteur Institute in Paris prominently record this work and the journal of the Pasteur Institute used to have a drawing of the two crystals as the symbol on its cover.

Thomas Bevill Peacock (1812 to 1882), of London, wrote "On Influenza or Epidemic Catarrhal Fever of 1848", which killed 5000 people in six weeks in London. His note of the purple colour of the patient with "capillary bronchitis" reminds us of the pneumonic influenza of 1919 in New South Wales. Peacock wrote an important monograph on heart malformations (1866).

Nikolai Ivanovich Pirogoff (1810 to 1881), the greatest of the Russian surgeons, made 800 post-mortem examinations on cholera victims alone in 1848. He carried out 11,000 autopsies. This may, perhaps, account in part at least for his renowned speed and dexterity as a surgeon. Pirogoff was the first to use rectal injection of ether and the first to use ether on the Continent (1847). Using Pieter de Riesner's method (1818) of sections through the frozen human body in three planes, he published his "Topographical Anatomy" (1852 to 1859). In 1854 his work in the Crimea showed him to be one of the greatest military surgeons. In this campaign he introduced women nurses in the Russian military hospitals. His well-known osteoplastic amputation of the feet was evolved that year.

L. Porta carried out his classical experiments on arteries (1848 to 1849), which first demonstrated the collateral circulation.

Lambert Adolphe Jacques Quételet, astronomer, of Belgium (1796 to 1874), helped to establish the science of vital statistics by his work (1848) "On the Social System and the Laws which Govern it", which followed his work "On Man". This put forward the idea of the average man as a central point in "social physics". Later he showed how the numerical findings group round the average estimate forming a curve, Quételet's curve, which is the normal curve to be expected by the theory of probabilities. Modern social research begins with Quételet. His ideas are employed in scientific method everywhere and especially in modern public health studies.

Robert Remak, of Posen and Berlin (1815 to 1865), a master of the microscope, discovered (1848) the ganglionic cells in the *sinus venosus* of the frog's heart—the controlling centres for the heart beat. He had discovered and named *Achorion schönleinii* and rearranged von Baer's embryonic layers. He combined two of the latter's layers into one, the mesoderm, making three in all.

Salvatore de Renzi (1800 to 1872) completed (1848) his great work in five volumes on the history of Italian medicine. He made a noted collection of Salernitan manuscripts.

Emil du Bois Reymond, of Berlin (1818 to 1896), a Frenchman by birth, was the founder of modern electrophysiology, and began in 1848 the publication of his extensive researches into muscle-nerve preparations. In this paper he used faradic stimulation, was the first to define electrotonus "*Froschstrom*", and closely studied physiological tetanus.

Emile Edmond Saisset (1814 to 1863) wrote (1848) a biography of Michel Servet (Servetus).

Maximilian Johann Sigismund Schultze, of Freiburg (1825 to 1874), microscopist, comparative anatomist and one of the greatest histologists, made his start in marine zoology, studying Turbellaria (1848). Later he became a master histologist notably of the sense organs. He adopted the term protoplasm and showed it to be present in all living cells (1863).

William Sharpey (1802 to 1880) wrote the article on osseous tissue in "Quain's Anatomy" of 1848, in which the fibres of Sharpey were first described. Sharpey became our first professor of physiology, holding the chair of anatomy and physiology at University College, London. His pupils included Foster, Burdon-Sanderson and Sharpey-Schäfer. He had in 1830 and in 1836 discussed ciliary action—"a peculiar motion excited in fluids by the surfaces of certain animals". Purkinje and Valentin wrote the classic paper on the vibratory motion (1835).

Jules Sichel, ophthalmologist, of Paris, wrote a book on spectacles (1848). His best work is his "*Iconographie Ophthalmologique*" with its atlas (1852 to 1859).

Carl T. E. von Siebold (1804 to 1885) and Hermann Stannius (1808 to 1883), of Berlin, brought out their important text-book on "Comparative Anatomy" (1846 to 1848). Siebold placed the hookworm in the Strongyloides and also was able to infect dogs with *Tænia echinococcus* (1854).

Franz von Soxhlet, a German chemist (1848 to 1926), invented a convenient apparatus for infant feeding with heated milk well known to pædiatricians. A stand carried the day's feeds in separate stoppered bottles and was heated by steam to the boiling point 100° C. to sterilize the fluid. (It could just as readily be used for pasteurization.) In 1886 appeared his paper on milk for children and the nourishment of sucklings. He also invented a lacto densimeter to estimate specific gravity, and devised a method for estimation of milk fat.

Alfred Stillé, of the United States of America (1813 to 1900), wrote an important work on pathology (1848). He had earlier helped in the differentiation of typhus and typhoid.

Adolf Strecker (1822 to 1871), a German biochemist (Heidelberg), studied ox bile (1848) and isolated glycocoll and alanin.

James Syme (1799 to 1870) wrote an important work on the pathology and practice of surgery, published in 1848. Best known today in association with Lister, his son-in-law and junior colleague, Syme was a first-class surgeon, distinguishing himself in work on iliac aneurysms, on excision of the elbow and other joints, and on amputation. He was also a teacher of great influence, whose strong support of anæsthesia and antisepsis greatly helped progress in surgery.

Sir John Tomes (1815 to 1895) published his classic "Lectures on Dental Physiology and Surgery" in 1848. Later he founded the Royal Dental Hospital (1858).

Rudolph Ludwig Karl Virchow, of Würzburg and Berlin, (1821 to 1902), studied "famine fever" (typhus) in Silesia in 1848. His experiences there led him to his outbursts on medical and political reform (1848 to 1849). The greatest pathologist of the nineteenth century (as witness his "Cellular Pathology"—1858), he never lost his general interests, as is shown in his studies of water sewerage for Berlin (1868), of health in schools (1869) and of the physical anthropology of the German people (1876).

Eden Warwick wrote on nasology (a classification of noses) in 1848.

Allen Webb, an Anglo-Indian surgeon, wrote on Indian climate and diseases (1848)—one of many important contributions by the Indian Medical Service.

Charles Richard Weld (1818 to 1869) wrote "A History of the Royal Society" with memoirs of the presidents.

A welter of reports on ether and chloroform were made in 1848.

In February Thomas Blizard Curling (1811 to 1888) gave an address to the Hunterian Society on the advantages of ether and chloroform. Curling's name is linked with the duodenal ulcer following skin burns. He was the first to recognize cretinism clinically, reporting the association of the fatty pads in the neck and absence of the thyreoid in 1850.

Charles Emmanuel Sédillot (1804 to 1883) wrote a similar paper in Paris. Sédillot was the first to perform a gastrostomy (November 13, 1849).

Edward William Murphy (1802 to 1877) reported to the Harveian Society a death from chloroform in a midwifery case (February, 1848).

Joshua Harrison Stallard published "Practical Observations on Chloroform in Cases of Midwifery".

James Miller (1812 to 1864) gave an account of his surgical experiences with chloroform in Edinburgh.

Richard Henry Dana (1815 to 1882), who was counsel for Morton, brought out "A History of the Ether Discovery", also a French edition, which printed the memoir Morton had addressed to the French Academy. In answer to this the brothers Lord, attorneys for Dr. Charles T. Jackson, published a claim on his behalf.

Among other happenings in 1848 that may be worth mentioning are the following.

The memoir of James Hope, M.D., was written by his wife.

One of the first mentions of Japan in the last hundred years was made. Vaccination was introduced into Japan in 1848. This was the forerunner of the work of Dutch physicians, who set up a medical school at Yeddo (1857), and were replaced in their turn by German influences (1868).

Charles Kingsley wrote "Yeast" (1848), a study in social science in many ways.

The Ray Society brought out the correspondence of John Ray (1628 to 1735), the noted botanist and biologist. This was edited by Edwin Lankester.

The Sydenham Society published the complete edition of Sydenham's works, translated from the Latin by R. G. Latham.

William Makepeace Thackeray (1811 to 1863) dedicated his "History of Pendennis" (1848) to Dr. John Elliottson.

Births in 1848.

Bernhard Lauritz Frederik Bang, Danish physician (1848 to 1932), recognized (1897) the causative agent of "milk fever" or puerperal fever in the cow (*Brucella abortus*). also known as contagious abortion. *Actinomyces necrophorus* is also known as Bang's necrosis bacillus. Bang's method—the removal of calves from tuberculous cows immediately after birth and their feeding either by healthy cows or with pasteurized milk—clearly showed by its success the minor role of heredity in tuberculosis. When healthy calves from tuberculosis-free cows were put on milk from tuberculous cows, they were almost invariably fatally infected. Grancher in Paris used the idea in transferring young babies of tuberculous mothers to healthy foster-mothers for safe milk.

P. von Baumgarten, a German pathologist, born in 1848, brought out his stain for leprosy. After staining with alcoholic fuchsin and decolorization with a 10% solution of nitric acid in the spirit, methylene blue counterstains tubercle bacilli and not lepra bacilli.

Alexander Hughes Bennett, London (1848 to 1901), with R. J. Godlee, in 1885 reported the first example of correct diagnosis, localization and successful surgical removal of a tumour of the brain.

Leonardo Bianchi, of Naples (1848 to 1927), was a leader in neuropsychiatry, teaching it at Naples (1890). He was a prolific writer on neurology—hemiplegia, brain pathology and cerebral localization. His treatise on psychiatry has been translated into English. He became Minister of Public Instruction, and during his term of office he favoured

autonomy of the universities. He also modified the penal system.

Edward Hickling Bradford, orthopædic surgeon, of New York (1848 to 1926), invented the well-known Bradford frame used where movement must be avoided, as in fractures of the spine. It is made of gas piping with canvas strips, a space being left for the use of the bed-pan. Braces, which were known in ancient Egypt, were used by Lovett and himself in scoliosis *et cetera*, as also were plaster jackets applied during suspension. Their "Treatise on Orthopedic Surgery" appeared in 1890.

William Keith Brooks, of Cleveland and the Johns Hopkins Hospital (1848 to 1908), wrote on the law of heredity (1883) and was interested in the cause of variation. He studied the Lucayan Indians (1887). He was an eminent biologist and published his historical study on "The Foundations of Zoology" (1899).

Truman W. Brophy, dental surgeon, of the United States of America (1848 to 1928), designed an operation for cleft palate. Lead plates were applied to each side of the maxilla, and after the attachments of the bones had been loosened the plates were drawn together by silver wire sutures—an heroic proceeding carried out on babies at an early age. During the first World War he was one of a team of dental surgeons whose wonderful work in plastic restoration gave a new interpretation of maxillo-facial surgery.

Otto Butschli, of Heidelberg (1848 to 1920), established that protoplasm was fluid. He thought its honeycomb or alveolar appearance was due to a mixture of two fluids of different degrees of viscosity (1891).

Camille Louis Antoine Champetier de Ribes (1848 to 1915), in his paper "*De l'accouchement provoqué*" (1888), introduced induction of labour—for example, in *placenta prævia*—by setting up vigorous uterine contractions through dilatation of the cervical canal. He invented a bag, conical and elongated, made of silk and rubber, tied on the end of a catheter. It could be readily introduced and then dilated.

Carl Däubler, of Peine, Hannover and Berlin, was born in 1848. Son of a physician, he qualified in 1872. He then visited Constantinople and made a survey for the Turkish Government through Asia Minor to the Red Sea. In 1877 he joined the Dutch military service and spent many years in the Netherlands East Indies. Thence he went to East Africa. From 1890 to 1895 he lived in Norway and retired to Berlin. The basic form of the young parasite in malaria he showed to be discoid, and by vacuolization to change to the ring. He noted fatty degeneration in peripheral nerves and vagus in beriberi, as well as fat droplets in the blood. He wrote important monographs on acclimatization of tropical natives and on tropical disease and hygiene.

Hermann Diels, of Berlin (1848 to 1922), wrote as the dissertation for his degree of doctor of philosophy at Boun a translation of Galen's "Philosophos Historia" into Latin. In 1905-1907 appeared his translation of manuscripts written by ancient physicians.

Anatole Le Double (1848 to 1913) wrote a life study of Bossuet, anatomist and physiologist. Bossuet (1627 to 1704) was famous as a pulpit orator. Le Double with Houssaye studied "*Les velus*"—excessive hair in man and its anthropological significance (1912). Le Double also wrote on medicine and surgery in prehistoric and protohistoric times (1911).

Paul Charles Dubois, of Bern (1848 to 1918), wrote "*Les psychoneuroses et leur traitement moral*" (1904). He urged reeducational treatment in functional nervous disorders—a pioneer effort in psychotherapy, and suggested suasion, both mental and moral.

William Ewart, born in 1848, showed how to bring out tracheal tugging in aneurysm of the aorta by elevating the larynx between the thumb and index finger. He also pointed out the elevated sternal end of the clavicle with prominent head of the first rib, the result of pronounced distension of the pericardium with fluid.

Richard Fleischer, of Berlin, born in 1848, first reported in 1881 "march hæmoglobinuria", produced by undue and prolonged physical effort.

Pio Foa, Italian pathologist (1848 to 1922), as professor at Modena and Turin, studied the pneumococcus and cytotoxic sera. He gave important help in the campaigns against tuberculosis and for sex education.

Auguste Henri Forel, of Stuttgart (1848 to 1931), described the hypothalamus nucleus and its commissure. Forel's decussation is the ventral part of the fountain decussation. In 1889 appeared his "Hypnotism and Suggestion in Psychotherapy". In 1903 were published his "*Hygiene der Nerven und der Geistes*", and also "*Die sexuelle Frage*"; the latter was translated into sixteen languages and ran into at least sixteen editions in German. His writings have had an important influence upon psychology and psychotherapy and on social enlightenment and progress.

George Ryerson Fowler, of New York (1848 to 1893), was the first to carry out thoracoplasty. He is best known for Fowler's position—raising of the head of the bed and so elevating the head and trunk. He designed this for diffuse septic peritonitis to facilitate drainage into the pelvis, and claimed to have had nine consecutive cases of recovery solely by the use of this simple means.

Albert Fraenkel, of Berlin (1848 to 1916), first isolated the organism and proved clearly that the organism already noted by Pasteur and Sternberg could be a cause of pneumonia—the pneumococcus or *Diplococcus pneumoniæ* (1886).

August Gärtner, physician, of Jena (1848 to 1934), was born in Westphalia (Schtrieb). As assistent to Koch he described Gärtner's bacillus (*Salmonella enteritidis*) as a cause of food poisoning (1888) at Frankenhausen. He should not be confused with Gustav Gärtner, of Austria (1855 to 1921), who invented a tonometer. August Gärtner held the Chair of Hygiene at Jena from 1886 to 1914. He was interested in drinking water (1897) and water supplies (1915). His "*Leitfaden der Hygiene*" (1892) ran into ten editions. Nature called him "the Nestor of German hygiene".

Marie Louis Victor Galippe (1848 to 1922) published "The Heredity of the Stigmata of Degeneration and the Royal Families" in 1905.

George Minott Garland, of the United States of America (1848 to 1926), described the upper level of dulness in a moderate pleural effusion as a curve parabolic in type highest in the axilla (also called Damoiseau's curve).

Arpad Geyza Charles Gerster, of Hungary and the United States of America (1848 to 1923), wrote on aseptic surgery—he was a pioneer. He published "*Sudor Anglicus*"—the sweating sickness in England in the fifteenth and sixteenth centuries—in 1916, and "Recollections of a New York Surgeon" in 1917.

Frantz Glénard, French physician (1848 to 1920), mentioned enteroptosis and gastroptosis (1885) in his analysis of nervous dyspepsia. In 1886 he referred to splanchnoptosis—Glénard's disease. Glénard's girdle test is to raise the viscera by pressure with both hands, which gives relief; sudden withdrawal of pressure gives rise to pain and perhaps dizziness in ptosis.

Dr. William Gilbert Grace, of Gloucestershire and England (1848 to 1915), was the greatest cricketer in the history of the game. He was the fourth son of Mr. Henry Mills Grace, surgeon, at Downend. His father and his uncle, Alfred Pocock, were ardent cricketers. Three of the sons reached first-class standards, and on one occasion all three—E.M., W.G., and G.F.—played for England in a test match. G. F. Grace died at an early age. E. M. Grace, who was reckoned by no means inferior to his younger brother, decided to go into practice and give up county cricket at the usual age. W. G. Grace showed his cricketing ability early. At nine years he played for West Gloucestershire against Bedminster. At seventeen years he played twice with the Gentlemen *versus* Players, being chosen as a bowler. From that time (1865) till 1900 he constantly figured in first-class cricket. His highest score, in 1876, was 344 for the Marylebone Cricket Club against Kent. Two days later he made 176 for Gloucestershire *versus* Notts, and two days afterwards 318 not out against Yorkshire, or 838 in three consecutive knocks and two completed innings. "Grace" is from the French *gros*, a big

man, and W. G. Grace was magnificently built, six feet two inches in his socks and an excellent runner and hurdler. In 1868, after an innings of 244 not out for England *versus* Surrey, he won the 440 yards hurdles at the Crystal Palace meeting of the National and Olympian Association. During the winter he ran with the beagles, shot and hunted. He qualified in 1879 with the diplomas L.R.C.P. (Edinburgh), M.R.C.S. (England) and practised at Bristol till 1899. He was medical officer to the Barton Regis Union, and vaccinator and surgeon to the Pennywell Collieries. In 1899 he came to London as secretary and manager to the London County Cricket Club.

Joseph Reynolds Green (1848 to 1914) published "A History of Botany in the United Kingdom" (1914).

William Alexander Greenhill, of London (1814 to 1894), one of our great medical scholars, translated Rhazes.

Siegmund Günther (1848 to 1923), an important critic and student of the history of medicine in Mitteilungen (Leipzig), contributed an important paper on Hippocrates in the *Festschrift Hermann Baas* (seventieth birthday, 1908).

Moritz Heidler (1848) published a life of Joseph Skoda in 1881.

Max Höfler (1848 to 1914) compiled a dictionary of old German medical terms (1899), and in 1908 came an outstanding contribution on "Organotherapy in Folk Medicine and its Relationship to Cult Sacrifice".

Joris Karl Huysmans (1848 to 1903) wrote "*Les foules de Lourdes*" (1908).

Ephraim Fletcher Ingals, of New York and Illinois (1848 to 1918), was the first to operate for partial excision of the septum for the correction of its deflection (1882).

James Israel, urologist, of Berlin (1848 to 1926), noticed in 1878 sulphur granules in the discharge from sores of the neck. With Wolff he isolated the actinomyces in pure culture.

Edouard Kirmisson, surgeon, of Paris (1848 to 1927), wrote an important work on diseases of the locomotor system. For years a leading surgeon at the Children's Hospital, Paris, he recommended transplantation of the *tendo Achillis* into the tendon of the *peroneus longus* (following a Phelps's operation for club foot). Incidentally he was the fastest talker I have ever heard in any language.

Robert Krieg, of Berlin, born in 1848, perfected his operation for deflected septum in 1882.

Adam Josef Kunkel (1848 to 1925) wrote a "Handbook of Toxicology" (1890 to 1901).

Leopold Landau (1848 to 1920) brought out a test for syphilis. (Iodine solution in tetrachlormethane is added to the test serum. After four hours ammonia is added. A clear transparent fluid is a positive result.)

Sir William Macewen, of Glasgow and Rothesay (1848 to 1922), was professor of surgery at Glasgow and a leading British surgeon. Both in orthopædic surgery and in surgery of the brain and spinal cord Macewen excelled. He was the first to try autogenous bone grafts which Albee, of New York, developed later. His best works are "Pyogenic Diseases of the Brain" (1893) and an excellent atlas of head sections (1893). Macewen's sign is a more resonant percussion note behind the stephanion in abscess. He invented a special bone gouge for mastoids, and special bone chisels for supracondyloid osteotomy (Macewen's operation). He had his own method for the radical cure of hernia, and worked out the use of acupuncture needles in aneurysm.

Henry Newell Martin, of Newry, Ireland (1848 to 1896), was a pupil of Foster and became professor of physiology at the Johns Hopkins University (1876 to 1893). W. H. Howell, his pupil, followed him as professor. Martin wrote with Huxley their well-known elementary biology. In 1882 he reported (Johns Hopkins University) the direct effect of arterial pressure on the mammalian heart. In 1883, by perfusion of the isolated mammalian heart, he showed the effect of changing temperatures (Royal Society, London).

George Merck, born in 1804, in 1848 isolated papaverine, a new base in opium.

Prince Albert, of Monaco (1848 to 1922), with his thoroughly equipped yachts, extended the study of marine biology and the development of its place in food supply as in vitamin *D*.

William James Morton, of Philadephia (1848 to 1920), reported the first application of the X rays in dentistry.

John Moyes, of Glasgow (1848 to 1895), wrote a review of medicine and kindred arts in the plays of Shakespeare (1896).

Matthew Moncrieff Pattison Muir, born in 1848, wrote "Heroes of Science—Chemists" (1883).

Max Nitze, of Wiesbaden (1848 to 1906), brought out his electrically lit cystoscope (1877), which led to remarkable progress in the surgery of the bladder, as evidenced in his monograph on cytoscopy (1889). He also made improvements in rectoscopy as well as urethroscopy.

Edward Osgood Otis, of the United States of America, born in 1848, published an appreciation of Oliver Wendell Holmes (1909).

Frederick James Montague Page, of London (1848 to 1907), published with Burdon-Sanderson several important papers on physiology, such as "The Time-Relations of the Excitatory Process in the Ventricle of the Frog's Heart" (1879 to 1880), in which the first records of the heart beat were given by the use of the capillary electrometer. In 1883 and 1884 further studies were made on the turtle's as well as the frog's heart, and the action currents of the heart were recorded photographically.

Cornelis Adrianus Pekelharing, of Zaandam, Holland (1848 to 1922), the son of a physician, began practice in Leyden in 1873, and took up lecturing at the University of Utrecht and research work on enzymes. In 1881 he succeeded Talma as professor of pathological anatomy. In 1882 he was sent out with Winkler (neurologist) on an investigation into beriberi. Their fundamental researches led to Eijkmann's experiments. In 1886 Pekelharing returned to academic work at Utrecht.

Pickering wrote an important monograph on ethnology.

Alfred Poulet, French physician (1848 to 1888), described rheumatic periostitis (Poulet's disease).

Jean Albert Pitres, of Bordeaux and Paris (1848 to 1925), used a series of coronal sections in studying the brain. With Charcot in 1895 he described "The Cortical Motor Centres in the Human Brain" in their clinical and pathological aspects. He noted hypoæsthesia in *tabes dorsalis* and was one of the first to suggest deep injections of alcohol for neuralgia (1887). He showed that a string stretched from the centre of the sternal notch to the *symphysis pubis* usually falls in line with the sternal axis. The angle it makes with the sternal line gives some idea of the amount of the effusion.

J. A. Portschinsky, of Kharkov (1848 to 1916), was the son of a military surgeon. He studied zoology at Saint Petersburg. He organized the Bureau of Applied Entomology in the Lands Department and became the Russian authority on the diptera, especially the flies musca, stomoxys, fannia *et cetera*. A number of Tabanids and the family Portschinska are named after him. He wrote 124 monographs on insects, many of which were new to science. He was also keenly interested in folk songs and folk medicine.

Burkhard Reber, born in 1848, wrote an historical study of Fabricius Hildanus (1907) and a work on the value of water treatment and of baths. He also wrote an appreciation of Paracelsus (1907).

Ernst Julius Remak, of Vienna (1848 to 1911), with Flatau, wrote on neuritis and polyneuritis.

Vladimir Karlovich Roth, neurologist, of Russia, born in 1848, described, with Max Bernhardt, *meralgia paræsthetica* or Roth-Bernhardt disease.

George John Romanes, of Kingston, Canada (1848 to 1894), after graduation at Cambridge, worked under Burdon-Sanderson. His studies of the locomotor system of Medusæ were printed by the Royal Society (1876 to 1881). He made noteworthy additions to psychology, on mental evolution in animals (1883) and in man (1888). He was Fullerian professor of physiology at the Royal Institution, London. He was a close friend and supporter

of Charles Darwin. He died at Oxford, where the annual Romanes Lecture is devoted to his memory.

Julian Schreiber, born in 1848, prevented voluntary muscular tension when testing the patellar reflex by patting the inner side of the thigh.

Friedrich Schultze (1848 to 1934) in 1893 described acroparæsthesia.

Augusto Tamburini (1848 to 1919) was Director of the Reggio Institute after Livi. He was a clinician and neurologist of note, and especially studied cerebral localization. He helped to improve the laws on insanity and on the care of the insane.

Ivan Romanovich Tarrhanoff, of Bonn (1848 to 1909), first described the psychogalvanic reflex (1890).

John Ashburton Thompson (1848 to 1915) was educated as a boy at Saint Paul's School; he went on to University College and to Guy's Hospital, where he qualified as a Member of the Royal College of Surgeons in 1868. He was interested in obstetrics and later took the degree of doctor of medicine at Brussels (1878). A breakdown in health led him to visit Australia. He returned to England to take the diploma in public health at Cambridge (1882). Many years later he was elected a Fellow of the Royal Sanitary Institute. On his second visit to Australia (1884) smallpox had broken out and he joined up with the Government of New South Wales in their efforts to quell the epidemic. In 1885 he became deputy medical adviser to the Government. His gifts of organization came into action in the planning of a complete health service for the colony. In 1896 he was appointed president of the Board of Health and chief medical officer and adviser to the Government. Before federation he acted on behalf of each colony as a Royal Commissioner to formulate model pure food regulations. He was able to gain a full measure of control of the safety and purity of foods without giving rise to undue restraints on trade at a time when each colony had its own customs barriers. Thompson realized that adulteration and sophistication of food had reached such a degree of subtlety and skill that it was quite beyond the ability of an ordinary intelligent citizen to protect himself. Detection indeed was possibly only by a trained chemical analyst. In general the legal maxim "*caveat emptor*" ("let the buyer beware") applies to purchases. In buying a horse or a motor-car it is wise to have them thoroughly "vetted" before paying over one's money. Food for human consumption is so vital to the health of the individual and of the community that the old-time legal control could and did lead to intolerable hazards. The *Pure Foods Act* and regulations put an end to all this. The onus is placed on the vendor and ultimately on the producer that the substance sold should be of the standard the buyer has the right to expect. Labelling has to be correct, legible and free from fraud. Inspection is frequent and unexpected. Samples are constantly taken and analysed. Preservatives with a few special exceptions have been swept away, and emphasis is laid on cleanliness and care in production. The improvement in the purity and safety of food and in the cleanliness of everything and every process associated with food has been a veritable transformation in this century. Australians owe much to Thompson in this regard. He assured us of a healthy food supply second to none in the world.

Thompson was an epidemiologist of distinction. His first published studies were on leprosy—"A History of Leprosy in Australia" (1894 and 1897) and "Leprosy in Hawaii" (1896). His outstanding success was in the defeat of bubonic plague in Sydney (1900 to 1902 and later). Plague, which had disappeared from our history as a race in 1665 and retired to its fastnesses in Asia, decided on a "walkabout" at the end of the nineteenth century. It appeared with renewed virulence in Hong Kong in 1894, where Yersin identified the causative microorganism (*Pasteurella pestis*). It visited Bombay, where the ignorance and insanitary customs of the inhabitants gave it full scope. In 1900 plague came to Sydney, ready for further disastrous victories. On epidemiological grounds Ashburton Thompson was convinced that the main defence against this rat disease was to attack the rat. With the help of his able lieutenants, Armstrong and Tidswell, his energetic campaign against this rodent was highly successful. He also followed up Simonds's suggestion regarding fleas as vectors, and added to our ideas of prevention of a previously unprevented epidemic. In Sydney, for the first time in the history of the world, a large city was freed from bubonic plague by planned action, and this dread enemy of mankind retired from the field after inflicting only a handful of casualties. This preceded the scientific work of the Indian Plague Commission, where Martin Bacot and others proved exactly how the rat flea transmitted the disease. In 1906, by request, Thompson described his campaign at the annual meeting of the American Medical Association.

Thompson retired in 1913, and died in London in 1915. He leaves a great name in the history of Australian health and in international welfare.

Edward Livingstone Trudeau (1848 to 1915) set up at Saranac Lake in the Adirondacks the first American sanatorium for tuberculosis, which has become one of the main centres for the study of the disease. Bodington suggested this treatment (1840), but for the first institution did not start till 1859 under Brehmer.

Hugo de Vries, of Holland (1848 to 1946), a great geneticist, with Bateson and Correns rediscovered and confirmed Mendel's epoch-making work of 1865, which, though published in a well-known scientific journal, had escaped notice. His studies of *Oenothera lamarckiana*, of which he found a giant variety that bred true to type, brought before scientific notice the importance of mutation—a variation which is transmissible. Its frequency is, however, still debated. His work "*Die Mutationstheorie*" (1901 to 1903) is a classic.

William Wagner (1848 to 1900) devised the osteoplastic resection of the skull.

Adolf Weil (1848 to 1916) was born at Heidelberg, where his father was professor of oriental languages, and he graduated there in 1871. After post-graduate study with Traube and Hebra, he returned to Heidelberg, where he became a professor and took up the subjects of syphilis and laryngeal tuberculosis. He also was keenly interested in methods of clinical teaching and brought out an excellent atlas on the topography of percussion. In 1886 (at Dorpat) he recognized a fever with incubation of seven to twelve days, with generalized pains, splenic enlargement, jaundice and nephritis. Wagner named it Weil's endemic bilious typhus, and Fiedler (1888) simply Weil's disease. Inada and Ido (1914) and Uhlenhuth and Fromme (1915) recognized the causative organism *Leptospira icterohæmorrhagica* (Weil personally doubted this finding). Weil also noted Weil's syndrome in tuberculosis, in which hyperæsthesia and other disorders of sensibility are limited to one side.

Karl Wernicke, of Silesia and Berlin (1848 to 1905), made many valuable contributions to the study of neurology and insanity, publishing "Diseases of the Brain" (1874) and an "Atlas of the Brain" (1904)—a first-class production. Few have had their name attached to so many bodily structures and functional disturbances—Wernicke's sensory aphasia (1874), Wernicke's area, field, region, zone or sensory speech centre (the lenticular zone in the left temporo-parietal lobe), Wernicke's fibres and radiation. Also there are Wernicke's reaction in hemianopsia, and his disease, acute hæmorrhagic polioencephalitis (1881) (earlier reported by Gayet, 1875). He was interested in the clinical manifestations of psychiatry.

Robert Wiedersheim, of Freiburg (1848 to 1923), published in 1883 a "Textbook of the Comparative Anatomy of Vertebrates" and in 1887 "*Der Bau des Menschen als Zeugniss für seine Vergangenheit*"—"The Study of Human Structure as Evidence of Man's Past".

Alexander von Winiwarter, born in 1848, worked out the two-stage operation for opening the gall-bladder into the intestine.

Paul Yvon, physician and chemist, of France (1848 to 1913), developed a test for alkaloids—a red colour with bismuth subnitrate, potassium iodide and hydrochloric acid. He also devised a test for acetanilid in the urine: chloroform is added and yellow nitrate of mercury. On being heated the fluid colours green.

In 1848 the first English public health act came into being, and with the setting up of the Central Board of Health an important forward step in the history of social hygiene and preventive medicine was taken. In a way it illustrated the saying that things have to be worse before they can be better.

The Industrial Revolution had arrived—a change quite unforeseen, indeed hardly realized, and certainly unprovided for. Scarcely a reference to it is to be found in current literature until the epic reports on the health of towns revealed a degree of squalor and overcrowding not seen in England since the Middle Ages. The application of steam power to the power loom (1784) had made it cheaper to bring the worker to the factory. While the early transports were adding a few hundreds to the scanty population at Botany Bay, men and women by their thousands were flocking to the towns which now housed half the population. Dwellings had been hastily run up, back to back, 120 to the acre. Each house had typically an area of 11 feet by 11 feet six inches and was in two stories, one family on the ground floor and one on the first floor. As the poor lived on the expensive land—as indeed they do today—rents were high and poverty was intense. The aftermath of war had led to food shortages. Tuberculosis—acute galloping consumption—reached the highest peak attained before or since. Cesspools were almost universal, and even in the mansions of the rich, Simon tells us, were regarded as equally sacred as the wine cellars.

Into this insanitary scene almost ideal for its spread came Asiatic cholera (1831), and in that year wiped out 11,000 persons in England, chiefly in the towns. Cholera was "news". A person quite well this morning might be dead tomorrow after horrible painful spasms, his face violet blue and his shrivelled body looking like a dehydrated vegetable.

The Government for the first time in history appealed to the medical profession, and Sir Henry Halford's committee recommended a board of health. The only authority available was the Poor Law Board, and health, like Cinderella, was allotted to it. The personality of Blomfield, Bishop of London, the driving force of Edwin Chadwick with his sanitary idea, the great investigations of Dr. Southwood Smith, Dr. Neil Arnott and Dr. Kay brought to the court of public opinion the proofs and the prescription.

The second and even more deadly epidemic of cholera in 1848 overcame opposition, and Chadwick, Carlisle, Shaftesbury and Southwood Smith formed the first Board of Health with a staff of inspectors and some legislative power. It had a short life of seven years. Chadwick had the drive, but the British public refused to be bullied into health. But it was a glorious failure. Medical officers of health came on the scene, at Liverpool first in 1847 and at London secondly in 1848 with one of the great men of our profession, (Sir) John Simon, round whose name public health in England centred for the next thirty years or more. William Farr made his oustanding contribution to vital statistics and epidemiology. Reinforced by Chadwick and Florence Nightingale and assisted by successive reminders by cholera, they made possible the great charter of public health, the English *Public Health Act* of 1875.

The Presbytery in Edinburgh wrote to Palmerston in 1848 asking for the proclamation of a national fast day because of the cholera epidemic; but Palmerston pointed out that "the weal or woe of mankind" depended upon the observance or neglect of "the laws of nature established by the Master of the Universe". He went on as follows:

> Lord Palmerston would therefore suggest that the best course which the people of this country can pursue to deserve that the further progress of the cholera may be stayed will be to employ the interval that will elapse between the present time and the beginning of next spring in planning and executing measures by which those portions of their towns and cities which are inhabited by the poorer classes and must most need purification and improvement may be freed from these causes and sources of contagion which if allowed to remain will infallibly breed pestilence and be fruitful in death in spite of all the prayers and fastings of a united but inactive nation.

PRIMARY INTERNAL FIXATION OF FRACTURES.[1]

By B. KEON-COHEN,
Melbourne.

NEARLY half a century ago Lane wrote that operation of primary internal fixation of fractures (*a*) "at once relieves the patient from pain", (*b*) "shortens the duration of the period during which he is incapacitated from work, since union is practically by first intention, and consequently very rapid and perfect", (*c*) "leaves his skeletal mechanics in the condition in which they were found before he sustained the injury".

Indications for Internal Fixation.

Internal metallic fixation of fractures, both simple and compound, may be used under the following conditions: (i) to maintain reduction in unstable fractures; (ii) to secure complete reduction with efficient immobilization in those fractures which unite slowly; (iii) to simplify the management of multiple fractures; (iv) to secure perfect apposition in those fractures in which operative reduction is necessary.

Unstable Fractures.

Certain fractures of the shafts of long bones are unstable, such as (*a*) sub-trochanteric fractures of the femur, (*b*) a "high Monteggia" fracture of the forearm, (*c*) fractures of both bones of the forearm. In these fractures, reduction, if achieved, is difficult to maintain by ordinary methods. Internal fixation is the answer to the problem of the unstable fracture.

Complete Reduction in Slowly-Uniting Fractures.

Some fractures are, for various reasons, notoriously slow to unite—for example, (*a*) fractures of the lower third of the femur, (*b*) transverse and spiral fractures of the tibia, especially in the lower third, (*c*) transverse fractures of the humerus.

Fractures unite more quickly when reduction is perfect. Interposition of soft parts produces a gap between the fragments that delays union. Not fully appreciated is the fact that this state of affairs is invariable in spiral fractures of the lower third of the tibia. It is practically impossible to reduce these fractures accurately by any closed method, because the upper spike of the lower fragment perforates periosteum and penetrates muscle for distances varying with the obliquity of the fracture. There is little to lose and everything to gain by operating on such fractured limbs.

Multiple Fractures.

Classic examples of multiple fractures are (*a*) fractures of the femur and tibia in the same leg, (*b*) the "baby car" fracture of the forearm and humerus in the same arm.

It is no exaggeration to say that the more complex the problem presented by these increasingly frequent multiple fractures, the more absolute the indication for internal fixation of one or all the fractures.

When Operative Reduction is Necessary.

Certain fractures, especially near joints, will not unite if, as often occurs, a cuff of periosteum and capsule is included between the fragment and the shaft of the bone. Examples are fractures of (*a*) the medial malleolus, (*b*) the lateral epicondyle, (*c*) the olecranon.

In point of fact, no one has ever hesitated to use internal fixation, usually in the form of some type of wire, to secure fractures of the olecranon. Since it is necessary to operate in all such cases, it would be foolish not to ensure accurate and firm apposition by even more suitable methods.

Comment.

What are the contraindications to internal fixation of fractures? They are concerned with technical difficulties

[1] Read at a meeting of the Section of Orthopædics and Physical Medicine, Australasian Medical Congress (British Medical Association), Sixth Session, Perth, August, 1948.

rather than with principles. Some fractures near the ends of the shafts of long bones present technical difficulties, peculiar to the site of the fracture. It is often not practicable to operate on a grossly comminuted fracture.

Perkins has stated recently that "if there be a new school of thought regarding fractures it is a school that teaches that bone and soft part treatment are of equal importance, and should be simultaneously undertaken". It is even more important in old people, in whom, as is only too well known, intractable joint stiffness so frequently spoils an otherwise excellent result. Again to quote Lane, "age is no barrier, indeed in old people an operation is often more imperatively called for than in vigorous life for the reason that prolonged recumbency in old age is a very serious matter".

Technique.

Equipment.

Lane laid down rules of surgical technique almost identical with those which today are collectively described as "no touch technique". In spite of modern antibiotic cover it is still necessary to practise this technique rigidly. No one therefore should embark on this branch of surgery unless he is fully equipped technically to do it well. Special instruments that are essential are suitable bone clamps, self-retaining screw-drivers, an automatic drill, and a suitable knife for cutting skin grafts. Without these, a simple surgical exercise can easily degenerate into butchery.

Materials.

Since vitallium became available about two years ago it has been used almost exclusively. An alloy of chromium, cobalt and tungsten, vitallium is held by American authors to be inert. There is reason to believe that it is not, and for that reason it is better removed after it has served its purpose.

Methods.

For the shafts of most long bones, plates of Lane's type are used in varying sizes according to requirements.

Screws alone are used to secure displaced fragments near joints, such as the medial or posterior malleolus. They can also be used with advantage in some fractures near the ends of long bones, where it is not possible to use a plate, and in spiral fractures of sufficient obliquity of long bones.

The insertion of an intramedullary nail is an excellent method of treating fractures of the upper half of the femur. It may also be used in dealing with fractures of the olecranon and of the upper third of the ulna.

Other methods, such as wire fixation and the Stader method of skeletal transfixion, have been used occasionally, but have been abandoned as having no special advantages over more orthodox methods.

Exposure.

A tourniquet is used whenever possible except in compound fractures. Adequate exposure of the fracture is necessary, and for this A. K. Henry's approaches can rarely be bettered. Periosteum is usually reflected, because this manœuvre allows much cleaner access and makes possible more efficient retraction of soft parts. Plates and screws should not, if possible, be so placed that they are subcutaneous. It is courting disaster for either to be crossed by the suture line. Incisions are carefully planned to this effect. The fracture most frequently treated by internal fixation—and for that matter probably the one in which the method pays greatest dividends—is that of the shaft of the tibia. It is now routine practice to secure the plate on the lateral surface of the tibia and bury it safely under the belly of the *tibialis anticus*.

After-Care.

All operations are performed under routine antibiotic cover, which is continued until the temperature settles—usually in three or four days. Whereas the plate or screws probably provide sufficient fixation for the fracture, they do not provide adequate immobilization of soft parts. Without exception the most important consideration after any operation on a fracture is to obtain primary healing of the wound. Complete immobilization of the wound during the immediate post-operative period is probably the most important single factor in promoting rapid healing. For that reason all fractures treated by internal fixation are immobilized by routine methods—the application of plaster casts, a Thomas splint *et cetera*—usually for about three weeks.

After the initial period of immobilization the regime consists of mobilization and free use. After fractures of the tibia—except those associated with actual bone loss—a caliper is fitted at three weeks and the patient discharged, walking, to "after-care". After fractures of the femur, trouble has been caused by the fact that the vitallium plates are not strong enough—they tend to bend if too much stress is thrown on them. Immobilization with some traction is usually continued for about six to eight weeks, a Pearson attachment being used for knee movements. A caliper is then fitted. Latterly two plates have been used; this gives much greater security. Küntscher nails in the upper third of the femur have been highly satisfactory, the patient being encouraged to walk without support in the third week. One such patient was fit for work in eight weeks, and actually returned to full employment on the railways at twelve weeks.

With few exceptions, movements of the shoulder, elbow and forearm are begun very early (after ten days) following internal fixation of the humerus.

Forearm fractures are maintained in a plaster cast for at least four weeks; pronation and supination are not encouraged for a further two or three weeks.

Results.

The method of internal fixation has now been used in enough cases for results to be evaluated. With the exclusion of Smith-Petersen nails for ordinary fractures of the neck of the femur, but with the inclusion of the pertrochanteric fractures for which a combination of nail and plate has been used, 189 simple fractures have been treated by internal metallic fixation, as a primary procedure. In addition, 47 compound fractures have been treated by primary internal fixation—a total number of 236 cases.

Complications.

In my experience there are no complications which cannot be overcome.

Sepsis.

The presence of sepsis is a spurious objection. No surgeon should attempt the work unless he is sure both of himself and of his team. If he regards the fear of sepsis as a contraindication to operative treatment of fractures, he should immediately desist from operating on knee joints, tendons, nerves *et cetera*, and confine his surgery to those structures that are relatively immune to the common domestic organisms.

In other words, if the operation is properly performed by a competent team using modern methods, the risk of sepsis is negligible. With the inclusion of the early cases, in only five instances (2·7%) has bone sepsis followed internal fixation of simple fractures, and in most cases it cleared up after removal of the metals. During the latter part of the period under review, and particularly since the tibial plates have been buried under muscle, no bone sepsis has followed operative treatment of simple fractures.

Delayed Union.

It is stated by some that internal fixation may cause delayed union. My experience has been to the contrary. Simple fractures of the tibia unite in an average of sixteen weeks, the slowest uncomplicated fracture taking just seven months. Certainly not all the fractures so treated unite in the stipulated period; but those which do not are uncommon. Unless fractures are showing obvious clinical and radiological signs of progress in union at the end of three months—and sooner if it becomes obvious before that time has elapsed that union is likely to be unduly delayed—measures are taken to see that

they do unite; in other words, they are grafted. In the simple fractures this has been necessary on seven occasions. It is proper to draw attention at this point to the simplicity of the operation of bone grafting by whatever method is used when the fragments are already secured in anatomical alignment.

Faults of Technique.

Mishaps due to mechanical faults in both simple and compound fractures have occurred on 17 occasions—that is, in 7·2% of cases. They include the following: plates and screws becoming loose; staples coming adrift from the olecranon; fracture of a femoral plate after early weight-bearing; Küntscher nails (home-made variety) bending with unsupported weight-bearing; a tibial plate bending when its owner went to the cinema without his caliper five weeks after operation.

Many of these mishaps can legitimately be termed "teething troubles", and they occurred in the earlier cases. It is presumed that similar complications will occur again, but less frequently as our experience grows and technique improves. However, it is emphasized—and this is a point of considerable importance—that in few instances was the end-result affected, and in only eight cases (four femora, one forearm, one olecranon and two tibiæ) was any subsequent correction of deformity required. Even then, end-to-end contact was not lost. This is a vastly different story from what can occur if control of a fracture is lost, when the fracture has been treated by other means.

Summary.

To summarize, 189 simple fractures have been treated by various forms of internal fixation. There were six deaths, the patients being very old and having sustained pertrochanteric fractures. With the inclusion of all the earlier cases, before the present technique was elaborated 156. or 85%, have proceeded or are proceeding to a highly satisfactory conclusion without untoward incident. Furthermore, even when the complications already mentioned have occurred, in almost every instance the end-results have been good even by the most exacting standards.

Compound Fractures.

It has been pointed out that there are real advantages to be gained from treating closed fractures by internal fixation. During the past eighteen months an effort has been made to allow the same advantages to be enjoyed by patients suffering from compound fractures. No claim is made that the technique now used cannot be improved, but a stage has been reached at which I do not hesitate as an immediate procedure to treat with plate, bone graft and skin graft a compound fracture. Forty-seven patients with compound fractures have, during the period under review, been treated by immediate internal fixation; 34 fractures healed by first intention and eight healed after minor degrees of superficial skin sloughing which in no way affected progress. In three early cases osteomyelitis developed, and one screw had to be removed from a medial malleolus. One death occurred as a result of crush syndrome on the fourth day; multiple fractures had been sustained, of which one, in the forearm, was plated. Although counted in this series, this case might with all honesty have been omitted, since death was probably not influenced by the plating. Thus, in 42 out of 47 cases, the compound fracture has been successfully converted to and treated as a closed fracture.

It would appear that it is a safer procedure to use internal fixation as a primary procedure in treating compound fractures, than to wait for the wound to heal and for delayed union to become obvious. Sixteen such patients—not included in the series—have been treated by a combination of bone graft and some form of internal fixation. In six instances the wound broke down, and more or less serious infection has caused considerable further delay in union.

It would be boring to attempt to trace the evolution of the present technique. In three of the early cases osteomyelitis developed, in one of them not until a secondary bone graft was performed six weeks later. It was learned from these cases that healing will not take place while a vitallium plate is *in situ*. Failure to appreciate this fact led to considerable delay in wound closure. In other words, however inert chemically vitallium may be, it still acts as a foreign body in the presence of infection and causes indefinite delay in healing.

In brief, the indications for using internal fixation in compound fractures are precisely the same as in simple fractures, with but one proviso. It is necessary—at any rate as far as present experience goes—to distinguish between "open" and "infected" fractures. Any compound fracture can be regarded as "open" provided it is not (*a*) due to gunshot wounds, (*b*) due to a gross crushing injury, (*c*) grossly contaminated, (*d*) left untreated for a period which, taken in conjunction with the degree of soft tissue damage and the degree of contamination, makes infection inevitable.

The treatment of "open" compound fractures is now universally acknowledged as "excision and closure". Just when fractures in categories (*c*) and (*d*) shall be classed as "infected" must be left to the judgement of the man on the spot. One compound fracture of the leg, twenty-four hours old, has been treated successfully as an "open" fracture, by plating, without any form of mishap. In actual practice almost all civilian compound fractures can be classed as "open" fractures and treated as such.

It is presumed that the usual meticulous wound toilet is carried out under routine antibiotic cover, and that blood is given if there is the slightest chance of the hæmoglobin level falling below 90%. This is the "ABC" of treatment of compound fractures, without which success is impossible. The fundamental aim in treating all compound fractures is to obtain primary healing of the wound. There are three golden rules to follow which render success extremely probable: (i) close the wound without tension; (ii) bury the metal under muscle; (iii) insist on absolute immobilization of the limb until healing of the wound is complete.

Wound Closure.

In this series I have been very sparing of skin—a lesson learned during the war. I have been a little disappointed at times when superficial skin sloughs about the suture line have occurred when everything else was well. These have been mostly small, and their occurrence lends some support to recent observations in America that it is still better to be radical with skin edges if there is the slightest suspicion of their viability.

Under just how much tension skin edges may be safely sutured is difficult to determine—there is no doubt that it is very little, and that it depends to some extent on the actual direct trauma received at the time of the injury. Of first importance in minimizing such tension is accurate and complete reduction of the fracture. This is so important that it might almost be described as an absolute indication for internal fixation of all compound fractures which come into the category of "unstable". If tension is still present when the skin edges are approximated, relieving incisions are made and bridge flaps formed. There are certain principles which must be observed in order that bridge flaps so formed can be successfully advanced and sutured—notably that the relieving incision shall be long enough to relieve tension along the whole length of the original incision, and that the flap so formed shall be wide enough in proportion to its length. In this manner it is possible to close all but the grossest wounds.

Burying the Metal.

Few compound fractures in which the plate or screws have been safely buried under muscle have become infected even in the presence of minor breakdowns of the wound. It is difficult, in the light of events in this series, to gainsay the fact that bone infection, when it does occur, results from the introduction of bacteria subsequent to the injury, following breaking down of the wound and exposure of the fracture site. A properly performed wound toilet under modern conditions should—and in fact probably does—set up conditions in which such soiling as remains can be adequately dealt with by the ordinary—and induced—powers of resistance. Subsequent gaping

of the wound and exposure of the fracture are a different story, more especially if reduction is not anatomical, and if the medullary cavity is exposed. Introduced infection is now heavy and continuous, and it is not surprising if osteomyelitis supervenes. Experience has shown also that the presence of metal in the form of a plate or even only as screw heads in such an open wound will prevent closure and cause persistence of infection.

For these reasons screws and plates are always buried when possible, and considerable care is taken to plan the incisions so that the suture line crosses neither the fracture line nor a screw head. This is not always possible to arrange, because the approach may be decided in advance by the position of the wound. However, when the wound is small and awkwardly placed it is better to ignore it—except, of course, for formal excision and closure—and to make an ordinary formal approach as for a closed fracture. The *débridement* is performed through the new incision.

Immobilization of the Wound.

Immobilization of the wound is of major importance after any operation on a fracture—there is no need to labour the point further.

Comment.

Until recently primary internal fixation was the method used in dealing with all compound fractures, but other problems still presented themselves. At first it was usual to dress the raw areas left by the relieving incisions and subsequently skin graft them at leisure. This meant a second operation and delay in both healing and rehabilitation. Now all such raw areas are dressed with split skin grafts at the original operation. The results have been highly gratifying. In nine cases local rearrangement of skin flaps with split skin grafts to the secondary defect has been required, and in no instance has there been less than a 90% "take".

A further problem presents itself in the comminuted fracture concerning the viability of completely denuded loose fragments of bone. In these cases, and when fragments of bone are missing or when for various reasons they cannot be pieced together, the main fragments only are secured in anatomical alignment and the remainder are discarded. The resulting deficiency is made good immediately with cancellous bone chips. In this manner not only is alignment maintained, but shortening, otherwise inevitable, is avoided. In three recent cases, therefore, not only has the compound fracture been treated by immediate internal fixation with a plate and screws, but bone loss has been made good by immediate bone grafting, and raw areas left by advanced bridge flaps have been dressed with immediate split-skin grafts. This is a time-consuming procedure, as long as three hours having been taken over one such operation. To have seen so many patients with compound fractures of the tibia walk happily out of hospital, in a caliper, four or five weeks after the injury, emphasizes most forcibly the fact that the prize is a glittering one and no effort is too great to achieve it.

Summary.

1. It has been shown that, with the use of modern methods and materials, internal fixation is the method of choice in the treatment of many different types of fractures, both simple and compound.
2. The advantages of the method have been stressed, notably (*a*) perfect reduction, (*b*) complete immobilization, (*c*) early restoration of function, particularly after compound fractures.
3. The problem of compound fractures has been discussed, and results have been quoted to show that, if certain principles are followed, primary internal fixation is not only possible but desirable in the majority of cases.
4. The reasons for failure have been examined, and ways of avoiding it are suggested—notably (*a*) immobilization of the wound after operation, (*b*) burying of the metal under muscle, (*c*) careful placing of the incisions, (*d*) closure of the incision without tension, and the planning of relieving incisions when necessary.
5. Attempts to avoid inevitable delay in restoration of function after compound fracture have been recorded—notably (*a*) the use of immediate cancellous grafts to replace bone lost at the original injury or discarded at operation, (*b*) the use of immediate split-skin grafts to dress raw areas due to skin loss or advanced bridge flaps.

Conclusion.

It is necessary to review our outlook on the treatment of fractures. The means are now available whereby mal-union can be eliminated, non-union prevented and delayed union reduced to a minimum. No one should begin to treat a fracture without a preconceived plan in which union is expected to progress according to schedule.

This work is still in part experimental—notably the use of immediate cancellous grafts in certain compound fractures. Taken as a whole, however, the results obtained are such that it is now impossible to imagine a return to the old haphazard methods, which, ignoring the toll of mal-union and shortening, resulted, in a recent series of 20 compound fractures of the tibia, in 30% of non-union at the end of twelve months.

Acknowledgements.

I wish to thank my ex-chief, Mr. Charles Littlejohn, for encouragement and criticism, and my colleagues at the Royal Melbourne Hospital for the part taken by them in the treatment of patients.

Reports of Cases.

THE OCCURRENCE OF UNUSUAL POSITIVE COOMBS REACTIONS AND M'VARIANTS IN THE BLOOD OF A MOTHER AND HER FIRST CHILD.

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IN the year 1945, Coombs, Mourant and Race described a reaction which occurs when anti-human serum rabbit serum is mixed with washed red cells which have become sensitized by certain antibodies. This reaction is most commonly encountered in hæmolytic disease of the newborn and in "acquired" hæmolytic anæmia in adults. Its occurrence in a case of the type described below has not, as far as we know, been previously reported.

Clinical Record.

Mrs. J. McI., aged twenty-four years, attended the Queen Victoria Hospital, Melbourne, during her first pregnancy. Routine ante-natal serological investigation showed her blood group to be A (subgroup A_1), Rh-positive with anti-Rh_0 (anti-D) serum. She was delivered of a normal full-time male child on November 11, 1947.

Positive Coombs Reaction.

It is our practice to carry out Coombs tests on the red cells of cord blood of all babies born at the Queen Victoria Hospital, in addition to blood group tests. The cord blood of Baby McI. was shown to be group A, Rh-positive (with anti-D serum) and to give a positive direct reaction to the Coombs test. The latter finding was surprising, as the baby showed no clinical or laboratory evidence, except the positive Coombs reaction, suggestive of hæmolytic disease, either at birth or subsequently. The mother's red cells were then submitted to the Coombs test, and also gave a positive reaction. However, the test described by Wiener and Hurst (1947) for the detection of sensitization of cells produced a negative result.

The results of these and other serological investigations carried out are shown in Table I.

The serum of the maternal blood sample taken on November 11, 1947, was also tested for atypical agglutinins with approximately 20 samples of group O and group A cells, amongst which were included known Rh_1, Rh_2, Rh-negative, M, N, P-positive and P-negative, Lewis-positive

TABLE I.
Results of First Series of Serological Investigations.

Subject and Date.	A B O Group.	Reactions with Anti-sera.[1]								Response to Coombs Test (Direct).	Response to Wiener's Sensitization Test.	Response to Kahn Test.
		Anti-Rh.				Anti-M.	Anti-N.	Anti-S.	Anti-P.			
		C.	D.	E.	c.							
Mother, November 11, 1947	A (A_1)	+	+	−	−	−	+	−	−	+	−	Negative.
First baby, November 11, 1947 ..	A	+	+	−	−	+	−	+	−	+	−	Negative.
Father, November 19, 1947	A (A_1)	+	+	−	−	+	−	+		−	−	Negative.
Second baby, February 11, 1949	A (A_1)	+	+	−	−	+	+	+		−		

[1] "+" indicates the presence of agglutination; "−" indicates the absence of agglutination.

and Lewis-negative cells suspended in saline, in albumen and in plasma-albumen mixture; no agglutination occurred. The indirect Coombs test, with the maternal serum, also gave negative results with various samples of cells; similar tests were carried out on November 19 and December 3, 1947, again with negative results on each occasion. As no maternal antibody was demonstrable, which could explain the presence of the positive Coombs reaction in the child's blood, it was thought possible that this finding was due to a red cell abnormality which might have been inherited. The mother's red cells were therefore tested, and were also found to give the positive direct Coombs reaction referred to above.

The baby's red cells were retested with Coombs serum on November 18 and 19 and on December 3, 1947, with consistently positive results. On August 16, 1948, the Coombs tests were repeated on red cells from the mother and baby, and on the father's cells. The father's blood gave a negative result, while the responses of the mother and baby were still positive. Confirmatory tests on the mother and baby with eight additional samples of anti-human serum rabbit serum also gave positive results.

No history of any illness which could account for this finding was elicited from the mother. An examination of her blood in December, 1947, gave no evidence of intravascular hæmolysis (red cell fragility and Van den Bergh tests gave results within the normal range, and there was no anæmia, abnormal reticulocytosis or demonstrable spherocytosis).

The possibility of species reaction to rabbit serum was considered, but excluded by experiments recorded in Table II, in which are shown agglutinations observed when samples of Mrs. McI.'s red cells and normal group A_1 red cells, both unwashed and after being washed three times and resuspended in normal saline, were mixed with normal rabbit serum and anti-human rabbit serum; there was no agglutination by the former, but strong agglutination by the latter serum only with Mrs. McI.'s washed cells.

Unusual M Variant.

The investigations shown in Table I, which were primarily carried out as part of the attempt to explain the positive Coombs reaction, revealed a second unexpected finding—namely, the apparently abnormal relationship of the M and N factors in the blood of the mother and child. According to the recognized inheritance of these factors, a baby with a mother of type N and a father of type M should belong to type MN, whereas with potent testing fluid, in this first series of tests, the baby's type appeared to be M. Tests were also carried out with anti-S serum (Walsh and Montgomery, 1947; Sanger and Race, 1947), but no anomalous results were obtained with this serum.

Several possible explanations of this finding occurred to us.

1. That the baby examined was not, in fact, the child of Mrs. McI. The hospital routine for the identification of babies consists of attaching a label to the baby's wrist, immediately after delivery, before the baby is removed from the mother's bed in the labour ward. This routine makes such an error almost impossible. The occurrence of the rare finding of the positive Coombs reaction in both mother and child also makes this possibility extremely unlikely.

2. That the mother's cells contain in their genotype one of the more weakly acting N genes (for example, N_s). However, no evidence of its existence in the child's cells could be detected by the use of six samples of potent anti-N serum (one obtained from the late Dr. G. L. Taylor, one from Dr. A. S. Wiener and four prepared at the Commonwealth Serum Laboratories), or by the use of the special tests—agglutination at 5° C., and the thick drop method for the detection of N_s recommended by H. Langenberg (1939), and the test described by P. H. Andresen (1947). Apart from the remote possibility that an even more weakly reacting N factor was present in the child's blood, it did not appear therefore that this hypothesis was the explanation of this discrepancy.

3. That the mother's cells contain in their genotype a weakly reacting M gene. This possibility was indicated by the results obtained with two anti-M sera (Beswick and

TABLE II.

Cells Tested.	Sera Used.[1]	
	Normal Rabbit Serum after Absorption with A_1 Cells.	Anti-human Rabbit Serum (Coombs Reagent).
Mrs. McI.:		
Not washed	−	−
Washed	−	+
Group A_1:		
Not washed	−	−
Washed	−	−

[1] "+" indicates the presence of agglutination; "−" indicates the absence of agglutination.

W.916), with which samples of Mrs. McI.'s cells sent to Dr. R. R. Race, at the Lister Institute, London, were tested in his laboratory. The results obtained by Dr. Race and those of a subsequent series of tests performed with seven further samples of anti-M serum and six of anti-N serum available in Melbourne are shown in Table III. These results indicate that Mrs. McI.'s red cells contain an M factor that is not agglutinable by all samples of equally potent anti-M testing fluid. Whether this variant is identical with the one originally described by Friedenreich and Lauridsen (1938) and later referred to by Schiff and Boyd (1942) as M_s cannot be determined, as the number of anti-M testing fluids available to us was limited, and we have no anti-sera of known relationship to Friedenreich and Lauridsen's M variant. Assuming, however, that it is similar, we will refer to it provisionally as M_s, and thus postulate that Mrs. McI.'s genotype is M_sN and that of her baby MM_s.

Since the original investigations, a second child has been born to Mrs. McI. on February 11, 1949. This baby's response to the Coombs test was negative, and his blood

factors are: O Rh-positive (R_1R_1) MNS. Shortly after his birth, Mrs. McI.'s Coombs reaction and that of her first baby were still positive.

Discussion.

Since there was no clinical evidence that the positive Coombs reactions in mother and child were the results of pathological processes, and since also Wiener's sensitization test produced a negative result, it would seem that the positive Coombs reactions were not due to the presence of an antibody attached to the red cells, but possibly were brought about by the presence of an abnormal receptor on the cells, of hereditary nature. This receptor is not revealed by normal rabbit serum. It is possible that it is related to antibodies produced in the rabbit serum in response to stimulation by unidentified antigens (somewhat analogous to the group-specific A and B substances)

TABLE III.

Results of Tests for MN Types Performed Subsequently to those Shown in Table I.

Sera Used.	Cells Tested.			
	Mr. McI.	Mrs. McI.	First Baby.	Second Baby.
Anti-M.				
Produced by immunization of rabbits:				
M 10 and M 14 ..	+	−	+	+
M 15	+	+	+	+
M 52	+	+	+	+
M 15D	+	+	+	+
M 19C	+	+	+	+
Of human origin:				
M RGH	+	−	+	+
M Fr	+	−	+	+
M Beswick[2]		+	+	
M W916[2]		−	+	
Anti-N.				
Rabbit:				
N 20	−	+	−	+
N 21	−	+	−	+
N 22	−	+	−	+
N 23	−	+	−	+
N 50	−	+	−	+
N 68D	−	+	−	+
Human:				
N Miller[2]		+	−	
MN genotype	MM or MM_2	M_2N	MM_2	MN

[1] "+" indicates the presence of agglutination; "−" indicates the absence of agglutination.

[2] These tests were carried out at The Lister Institute, London, on the blood samples sent to Dr. R. R. Race. Sera M 52 and N 50 were sent by the late Dr. K. Landsteiner, and sera M 15D, M 19C and N 68D by the late Dr. G. L. Taylor, to the Commonwealth Serum Laboratories in 1940. Sera M 10, M 14, M 15, N 20, N 21, N 22 and N 23 were prepared at the Commonwealth Serum Laboratories. (For M 10 and M 14 cells from the same subject were used, in different groups of rabbits.) Sera M RGH and M Fr were identified at the Australian Red Cross Blood Transfusion Service, Victorian Division, Melbourne.

in the human serum used to immunize the rabbits. If this receptor is an inherited characteristic, it must have been present in heterozygous form in the mother's cells and absent from the father's cells, as the reaction could not be obtained with the red cells of the second child. Familial studies of Mrs. McI.'s relations might have been helpful, but unfortunately she was a ward of the State during her childhood and has no traceable relatives.

The rare occurrence of positive Coombs reactions in the cells of newborn babies who showed no clinical evidence of iso-immunization has been previously reported (Jakobowicz, Krieger and Simmons, 1948). It is possible that these babies' cells possessed similar receptors, but the parents were not examined.

Many thousands of parent-child relationships in respect to the M and N factor have been examined, especially in European countries, but an M variant has been reported previously only in the case referred to above.

Such a variant would therefore seem to be extremely rare, because, although failure to detect it in the cells of a putative father might lead to the deduction that the child was not his, apparent discrepancy brought about by failure to detect it in the cells of the mother (as in our preliminary tests) would almost certainly lead to further investigations. Its rarity is demonstrated also by Wiener's (1943) investigation of a series of more than 1000 blood samples tested with different anti-M fluids, in which he found no discrepancies among the reactions, and by our tests of a series of 500 random blood samples with two anti-M sera, one of which (M 15) detected the M variant present in Mrs. McI.'s red cells, and one (M 10) which failed to do so, and with two anti-N sera, which also produced no discrepant results. Nevertheless, the insistence of all authorities (for example, Hektoen, Landsteiner and Wiener, 1937, and G. L. Taylor, 1939) that several different samples of M and N testing fluids should be used in the determining of M and N types, suggests that irregularities in the agglutinability of these types by testing fluids of satisfactory potency may occur.

It is also worthy of note that four of the five rabbit anti-M sera used in our second series of tests reacted with the M_2 antigen in Mrs. McI.'s cells. It seems hardly likely, if this variant is as rare as it appears to be, that four of the five subjects whose cells were used to immunize rabbits would contain it in their M genotype. It is possible that "a broadening of the scope" of the antibodies produced has occurred along lines analogous to those described by Race, Sanger and Lawler (1948) in relation to the D-Du and C-Cw antigens of the Rh system. Cell samples from different individuals appear, however, to vary in their ability to stimulate the production of antibodies active against M_2; while four of the immune rabbit sera available to us caused agglutination of M_2 cells, the sera M 10 and M 14, which were produced in different groups of rabbits inoculated at different times with the red cells of the same subject, both failed to do so. Of the four human anti-M sera found in London and Melbourne, only one detected the M variant present in the cells of Mrs. McI.

Summary.

1. A case is described in which a positive direct Coombs reaction was given by the blood of a mother and her first child, but not by that of her second child, or by that of their father.

2. These positive Coombs reactions were apparently not the result of iso-sensitization, but were possibly due to the presence of a rare receptor on the red cells of the mother and her first child.

3. Preliminary tests showed M and N types in the mother and the first child which were inconsistent with the known laws of heredity of these factors, in that the mother appeared to belong to type N and the child to type M.

4. Investigations with nine further samples of anti-M serum derived from different sources revealed that the mother's red cells were agglutinated by five, but not by the other four, of these samples. These results indicate that the mother's cells contain a variant of the M factor, which may be similar to or identical with the "defective" M factor described by Friedenreich and Lauridsen, and referred to by Schiff and Boyd as M_2.

Acknowledgement.

We are greatly indebted to Dr. R. R. Race for supplying us with samples of anti-S serum, for his helpful comments and for permission to quote his findings in this paper.

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EXCESSIVE USE OF "BENZEDRINE" BY A PSYCHOPATH.

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MUCH has been written on the pharmacological and physiological effects of "Benzedrine" (amphetamine) sulphate, and its therapeutic application in narcolepsy, post-encephalitic parkinsonism, alcoholism, obesity and other conditions; but there have been few references to the problem of addiction, and therefore the following case was thought worth reporting.

Clinical Record.

A male patient, aged twenty-nine years, was admitted to a mental hospital on April 6, 1949, having been certified insane on March 24, 1949. He is a single man, a labourer by occupation. His father was interviewed. He is aged sixty-five years, was born in Europe, and stated that his first wife, the patient's mother, had had nervous illness and was excitable and unreasonable. He was observed to be an excitable, over-anxious person. The patient's sister is married, and in good health. His two brothers are both "occasional drinkers"; but one takes "Benzedrine" to excess, and is at present serving a three-year gaol sentence for assaulting a female.

The patient is third in a family of four. His home life was unsatisfactory. His parents quarrelled frequently. The mother despised the father's European background, so the latter took her round the world, leaving the patient and his brother in a convent school, the patient being aged seven years. During this trip, the mother was found to have been infected with *Treponema pallidum*. The father returned to Australia and had his family tested; they did not react to the Wassermann test. Divorce followed, the patient being aged eight years. The patient was then educated in Germany, returning to Australia after three years. He obtained his intermediate certificate, passing the examination in five subjects, and left school at the age of sixteen years.

At this stage the patient's mother took the children over and the patient began work as a labourer. This lasted for two months. He was an apprentice to an electrical fitter for eighteen months, and then held three positions as a labourer, being dismissed from two and leaving the third. He joined the army in April, 1941, but was discharged after sixty-three days owing to his criminal record.

This criminal record includes the following convictions. From 1938 to 1943 he was tried on at least six charges of breaking, entering and stealing, on one of receiving, and on two of having drugs in his possession. The sentences totalled two years four months, mostly with hard labour. From 1946 to 1948 he was tried on nine charges including stealing, begging and vagrancy, with sentences totalling one year one month. In the period 1945-1946 the patient was confined to a State institution for alcoholism.

The patient admits having practised auto-eroticism for many years, and also occasional heterosexual intercourse with prostitutes and sometimes amateurs. He was infected with *Treponema pallidum* three years ago, and received treatment for it. He smokes four ounces of tobacco a week and is a heavy drinker of alcohol. In 1943 he began taking habit-forming drugs. These were cocaine and heroin, it is believed, but the quantities are not known. The patient's father states that the mother by her laxity was responsible for the son's habits. The patient began taking "Benzedrine" (amphetamine) sulphate tablets in late 1943. In his words, "I took them at my brother's suggestion and because I liked to have a crack at everything". He has obtained the tablets (each of five milligrammes) from chemists by purchase, and from chemists and hospitals by stealing. He has often taken 25 tablets (125 milligrammes) as a dose, and claims to have taken 75 tablets (375 milligrammes) on one occasion; he usually takes 25 to 50 tablets (125 to 250 milligrammes) per day. He states that "Benzedrine" is cheaper than alcohol, and so he has taken more of it and less alcohol in the last few months before his admission to hospital. He has obtained money from his mother, borrowed it from his friends, and pawned the blankets off his bed to buy the drug. He took it for four months in 1943, then there was a gap of twelve months, then he took it for six months, then there was a further gap of twelve months whilst he was in an institution, and since then he has taken it almost continuously.

He states that the drug gives him an intoxicated feeling and sometimes makes him "wobbly on his feet". He feels "elated, stimulated, more talkative and happy". He denied sexual stimulation at one interview; at another he said the drug enabled him to indulge in auto-erotic activity four times in succession, making it indescribably delightful. He prefers auto-eroticism to heterosexual relations. Withdrawal symptoms are wakefulness, the longest period being three days and two nights, feeling "down in the dumps", headache, "hit to leg", and hunger.

On his admission to hospital the patient was dull and solitary, restless and irresponsible, foolish in conversation, with little interest in himself or his surroundings, little insight and mentally incapable of looking after himself. He said: "I can give up 'Benzedrine' at any time, I don't know why I didn't do so. I don't know why I don't go to work. My mother has ample means and she keeps me." (The last sentence is completely false.) The patient has difficulty in concentration and his remote memory is poor. The provisional diagnosis is psychopathy with schizoid tendencies.

Apart from dental caries, examination of the patient's various systems revealed no abnormality. The blood pressure was 130 millimetres of mercury (systolic) and 70 millimetres (diastolic). The blood failed to react to the Wassermann and Kahn tests. The cerebro-spinal fluid was examined: the Wassermann test produced no reaction, the Takata-Ara test produced a positive reaction, the number of cells and the globulin content were not increased and the colloidal gold reaction was represented by the following figures: 111100000-0.

Discussion.

The problem of "Benzedrine" addiction has been discussed by several workers. As far back as 1937, Guttmann and Sargant outlined the physiological and psychological effects of "Benzedrine", discussed its use in depressive illnesses, anxiety states, schizophrenia and narcolepsy, and then gave a warning that "the possibility of addiction needs to be guarded against . . . though none of our own patients have so far shown a tendency to addiction. The preponderance of disquieting somatic symptoms over the feeling of euphoria when large doses are taken, and the sleeplessness, make us think that addiction will be rare." Lesses and Myerson in 1938 stated that there was no evidence that stimulants ever became habit forming, and

that having used "Benzedrine" for more than two years in a very large number of cases, they had not seen "a single case of addiction in the sense that a person, otherwise well, now feels it necessary to take the drug habitually in ascending doses to produce the desired effect". Friedenberg (1940) gives a warning against the possibility of addiction by its continued use in the treatment of obesity. A female patient, who took five 10 milligramme tablets twice a day for six month for obesity, experienced fatigue and depression when the dose was reduced, and demanded larger doses, stating that she could not do without the stimulus the tablets supplied. Hahne (1940) reported a case of "addiction to 'Benzedrine' sulphate", the patient being a male alcohol addict who took an average of 120 milligrammes per day (up to double this amount on some days) for two and a half years, finding that it banished his desire for alcohol. Withdrawal of "Benzedrine" caused "a terrific craving", nervousness, exhaustion, inability to think clearly and insomnia. An interesting point here is that in this man the addiction had apparently been transferred from alcohol to "Benzedrine". Myerson (1940), commenting on this case, stated that it was exceptional, and that having used the drug regularly in the treatment of alcoholism for four years, he had "run across no case in which the individual did not easily drop the drug after the desired results of prolonged abstinence from alcohol had been reached", thus confirming the opinion he and Lesses had expressed in 1938.

Shorvon (1945) quotes a case illustrative of a statement by Denis Hill: "Certain psychopaths can tolerate benzedrine in enormous doses and benefit from the therapy, as opposed to normal persons, who are intolerant of high doses. The case, a male psychopath aged 35, took large doses of benzedrine for over four years, the daily consumption being 125 to 150 m.g. for many months periodically. The patient stated that this 'stimulated my sense of perception, imagination and formulation of ideas', and increased his energy, but gave him no feeling of intoxication. The only apparent withdrawal symptoms were increased restlessness, sleeplessness and marked hunger, and he said, 'I can't say that I missed it a great deal, and . . . I felt no craving for it'."

Monroe and Drell (1947) give an interesting account of the oral use of the volatile base obtained from "Benzedrine" inhalers by a military prison population. Various brands of inhalers contain 250 to 350 milligrammes of the drug. They found that 25% of the inmates were in the habit of using "Benzedrine" obtained in this way as a stimulant. The actual doses used were difficult to ascertain. One patient admitted taking the contents of an entire tube (250 milligrammes) and gave a detailed account of the sensations that resulted. In these patients, withdrawal of the drug precipitated weakness, depression, gastro-intestinal disturbance and tremor. The authors make the following statement:

> Psychotic manifestations may develop in those on large doses, especially in persons with paranoid trends. Ideas of reference and hallucinations were observed in four inmates. A study of the personality of fifteen inmates using amphetamine showed that all possessed personality defects.

In a "Current Comment" in *The Journal of the American Medical Association* (1949), the following statement is made:

> A Congressman has prepared a bill suggesting that amphetamine be placed on the narcotic list, although the drug is not in any sense a narcotic, nor is there any evidence that it is addictive. The persons who use amphetamine are apparently those who try all sorts of drugs as stimulants, including alcohol, marihuana, and bromides. . . .

Our own patient, an idle psychopath with schizoid tendencies, a very unsatisfactory home background and a criminal record, had been in the habit of taking large quantities of both alcohol and "Benzedrine" periodically for six years, in the dosage already indicated. His motive appeared to be a desire for stimulation and fresh sensation, and he "liked to have a crack at everything". He achieved the desired result. Withdrawal symptoms were fatigue, depression, headache and hunger. However, he said he did not miss the drug much and felt no craving for it. He has not asked for "Benzedrine" since his admission to hospital. This case would appear to confirm the impression that psychopaths can tolerate large doses of "Benzedrine". The problem of addiction, in our view, requires further investigation. We feel that the possibility of true addiction to "Benzedrine" cannot be ruled out, and that great care should be exercised in prescribing the drug. However, it would appear that the tendency to become addicted is not very marked.

Acknowledgement.

We wish to thank Dr. E. Sydney Morris, Inspector-General of Mental Hospitals, New South Wales, and Dr. W. E. Audley, Medical Superintendent of the Mental Hospital, Orange, for permission to report this case.

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Reviews.

DIAGNOSTIC TESTS IN PÆDIATRICS.

FROM the pen of Dr. H. Behrendt, of New York, comes a volume under the intriguing title of "Diagnostic Tests for Infants and Children".[1] The title makes one wonder whether infants and children are to perform the tests or whether the tests will reveal the presence of these young persons. It is a pity that a book should be handicapped at the outset by a slovenly title. The author in his preface attempts to explain the purpose of the book and its title; the preface is worthy of somewhat careful examination.

He states that he is serving a wide range of readers, from the practitioner "in a hurry" for useful information, to the research worker needing standards for comparison made necessary by the "physiological peculiarities of the growing organism". In the introduction which follows, he stresses that he has included only "functional tests which have a fair chance of being carried out", and has omitted description of routine tests of a morphological nature which can be found in standard text-books.

The first eight chapters are concerned with biochemical analyses of the functions of digestion and nutrition, including careful description of approved techniques, and a section is devoted to the interpretation of the tests and fallacies which may interfere with their accuracy. In relation to the problem of the estimation of basal metabolic rate, this section is of particular importance, and while the author is careful to state that "practice with the machine" is essential, he hesitates to commit himself to an opinion of the results of the test, and gives a wide variation as the normal range.

A similar criticism must apply to electrocardiography in the child. Competent cardiologists are fully aware of wide variations in tracings from children, and the information obtained in patients with rheumatic carditis or congenital cardiac disease must be evaluated with such variations in mind. The section devoted to skin tests and immunological reactions mentions numerous antigens seldom employed in this country, such as histoplasmin and brucillin, and the

[1] "Diagnostic Tests for Infants and Children: Principles, Clinical and Laboratory Procedures, Interpretation", by H. Behrendt, M.D.; 1949. London: Interscience Publishers, Limited. New York: Interscience Publishers, Incorporated. 9" x 6", pp. 546. Price: $7.50.

section describing the method of testing for the Rh factor is of great use. The consideration of blocking antibodies is by no means so complete as one would have expected in a 1949 publication.

The section on psychological tests would appear to the frivolous reader as real justification for the title of the book, since Dr. Kate Kogan describes tests of common experience, and the performance of them by different age groups as standards of normality, so that the twelve-year-old who produces results comparable with a normal two-year-old has a diagnosis made for him in relation to his fellows rather than his actual age group. It is very difficult to assess the usefulness of such an inclusion in a publication of this type, but then the whole plan of the book is unusual.

We can commend this work to the pædiatrician and his laboratory colleague.

MASSAGE AND REMEDIAL EXERCISES.

THE eighth edition of "Massage and Remedial Exercises in Medical and Surgical Conditions" by Noël M. Tidy is a book that is of great practical use to all masseuses and to any doctor whether he be a specialist or a general practitioner.[1] Unlike many textbooks on massage, this book, as the title states, deals with medical and surgical conditions of all descriptions as well as purely orthopædic disorders. Naturally, however, there is a very complete description of all bone and joint injuries together with accurate details for the physiotherapy of each lesion.

A useful chapter is devoted to pre-natal and post-natal exercises, which if carried out carefully will do much to make childbirth the natural event that it should be. Many physicians possibly do not employ the aid of massage and exercises in diseases of the heart and respiratory tract, but in this book they will find details of many such useful adjuncts for helping the patient with a diminished cardiac output or a lessened vital capacity.

Since the last edition was published, additions have been made to the sections on asthma and bronchiectasis and details have been given on the after-treatment of lobectomy, pneumonectomy and thoracoplasty and also on the physical treatment of sciatica due to disk lesions. The problems of the treatment of obesity and constipation are clearly dealt with, and in fact the treatment of any bodily malady in which massage or exercises can be of help is covered adequately. That eight editions have been produced in seventeen years proves the worth of the book as well as the fact that the author has tried to keep it up to date.

A COMPANION IN SURGICAL STUDIES.

BOOKS embodying the principles and practice of surgery are now so numerous that the arrival of a massive newcomer such as Aird's "Companion in Surgical Studies" must prompt the question whether its production is justified.[2]

Volumes of general surgery stem usually from two sources. More commonly, a popular teacher in a large undergraduate medical school expands his notes to students into a printed book, mainly intended for the use of his own school, but with a hope that it may prove sufficiently useful to achieve a wider circulation. The obvious defects of such a book are that it is necessarily rather elementary, because of its undergraduate appeal, and that it is incomplete or of varying authority, as reflecting the inevitable limitation of its author's interests.

A second group of multi-volumed works would seem to be commissioned by a publisher, who arranges for a team of competent specialists, working within the allotted space, to produce a complete treatise on surgery. While, because of their cost, these books can appeal only to the practising doctor, there are few instances where they prove satisfactory to their owner. Because of the multiple authorship, the articles are uneven and the style is varied. Behind a handsome façade, there are often much obvious padding, large numbers of illustrations, and large print, which reduces the actual substance of the work materially.

Aird's work suffers from none of these defects. Written as it is by a single author, formerly a popular post-graduate teacher in Edinburgh, and now Director of the Post-Graduate Surgical Unit in the University of London, the book is intended primarily for the student reading for a higher surgical degree.

Omitting only the subjects of orthopædics and fractures, the author presents a scholarly dissertation on the rest of general surgery. The book is written in an incisive, pleasant style, and there is never any suggestion of padding. Rather every effort is made to convey in the fewest possible words what is believed to be the truth about each subject. Since this book, in its 1000 pages, without any illustrations, must contain at least 750,000 words, it forms a vast repository of knowledge.

Though it is assumed that the reader is intimately acquainted with anatomy and physiology, details of these subjects are given when they serve to illustrate surgical techniques, or underlie general principles of management. The pathology of surgical diseases is fully expounded. The general plan of the book is to make available to the reader a body of knowledge otherwise accessible only in almost innumerable monographs and original articles. The sources of most statements are given in a table of references at the foot of each page. Nor is the history of a subject neglected, and there is generally a sufficient historical statement to show how the present position in diagnosis or treatment has been achieved.

The details of selected operations are stated in definite and precise language, and in a few paragraphs more real information is provided than may sometimes be found in many pages of more pretentious publications. Above all, however, the emphasis is on accurate, detailed, modern knowledge. Not only the common, but also the rarest explanations of a syndrome are tabulated, the latter usually in a smaller print.

Here the seeker after knowledge can find information that might enable him to write a scholarly essay on pre-auricular sinuses, chronic duodenal ileus, the statistical evidence for surgical treatment of patent *ductus arteriosus*, or the seventeen varieties of the reticuloses most important to the surgeon, equally with the fullest treatment of more mundane matters such as the management of wounds, the place of vagotomy in the treatment of chronic peptic ulcer, or the surgery of the chest.

A full index is provided, and we have found no single instance of a typographical error.

One can be equally amazed at the stupendous knowledge of the author, as at his capacity to write such condensed yet pleasing prose. This is certainly one of the best works for advanced surgical students in the English language.

CLINICAL RADIATION THERAPY.

A NEW edition of Kaplan's book on clinical radiation therapy appears after twelve years; it has been largely revised and certain chapters have been completely rewritten.[1] It is excellently produced, with numerous diagrams and very clear photographs, and no doubt will fulfil a definite need for a publication giving a general account of the indications for the treatment of benign and malignant conditions by irradiation.

The aim of the author has been to produce an up-to-date text-book, but it seems doubtful whether he has achieved this. The chapters on readiation physics and principles of radiation therapy are good, and contain an account of such modern advances as radio-active isotopes and their uses, and details of the Paterson Parker system of radium dosage, which is now widely used in Britain and this country. It is surprising, therefore, to find in the clinical chapters that radium dosage is still expressed in milligramme-hours. In fact in the descriptions of X-ray and radium techniques, there is no attempt to deal with the problems of tumour dose, or tissue dose, or to suggest the level of lethal doses for various types of tumours. Further, there is no mention of some of the more modern techniques employed in the planning of deep X-ray therapy.

It is pleasing to see emphasis laid on the value of irradiation in the treatment of inflammatory conditions, and the wide clinical experience of the author, who works at one of the largest city hospitals in the world, is apparent throughout.

The book covers all the important conditions for which radiotherapy is used, and in spite of the deficiencies mentioned can be recommended as a helpful addition to the library of any practising radiotherapist.

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[1] "Massage and Remedial Exercises in Medical and Surgical Conditions", by Noël M. Tidy; Eighth Edition; 1949. Bristol: John Wright and Sons, Limited. 8½" × 5½", pp. 500, with 190 illustrations. Price: 25s.

[2] "A Companion in Surgical Studies", by Ian Aird, Ch.M., F.R.C.S.; 1949. Edinburgh: E. and S. Livingstone, Limited. 9½" × 7", pp. 1072. Price: 63s.

[1] "Clinical Radiation Therapy", by Ira I. Kaplan, M.D., F.A.C.R.; Second Edition; 1949. New York: Paul B. Hoeber, Incorporated. 9½" × 5½", pp. 868, with 614 illustrations. Price: $15.00.

The Medical Journal of Australia

SATURDAY, DECEMBER 31, 1949.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: surname of author, initials of author, year, full title of article, name of journal without abbreviation, volume, number of first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

RETROSPECT AND PROSPECT.

IN his "London Letter" published recently in this journal our Special Representative had two sections—one "Looking Backward" and the other "Looking Forward". By the way in which he dealt with the subjects of his choice, he reminded us that it is a good thing to halt occasionally and to take stock of what we have, what we have done and what we have left undone in the past, and of what we think we should like to have or to do or to leave undone in the future. This is a theme that has been mentioned time and time again during the life of this journal, and such a reference is bound to recur in the future. Stock-taking is referred to as a rule at the end of the year, and this is right, because we measure our lives by years and also the lives of our assemblies, societies and associations. Time rushes on. In the spring of our verve and audacity time seems almost to be at leisure; but in the "winter of our discontent", perhaps because we are tired, time seems to move less slowly and we find ourselves hurrying from one year's end to the other. In our youth the future seems a long way ahead, but when we grow older we look forward as it were through convex lenses and are more conscious of our destiny than we used to be. By the time a man or woman is admitted to the full ranks of medicine, time in its leisure has been left behind, the pace increases each year and the looking forward becomes progressively a more urgent matter. Whether, therefore, we are young or old in the ranks of medicine, we do well to take stock. To discover the true *status quo* and not to do what is shown to be needed is to fail in duty. Many persons make new year resolutions, only to break them at once; this is blameworthy, but the making of a resolution does at least show that a fault or a defect is known and that some thought has been given to the subject with which it is concerned.

A retrospect of 1949 in these columns cannot be expected to cover every advance made in the medical sciences and no attempt will be made to do this. The claim can be made that most of the progress of the last twelve months has been recorded either in the contributed or in the editorial columns of the journal. The post-graduate committees in the several States have continued their valuable work in general refresher courses and in courses of study specially arranged for graduates desirous of acquiring higher degrees or diplomas in medicine or surgery or in one of the more restricted specialties. The visits from travelling lecturers from overseas have had a stimulating effect on post-graduate students and also on teachers. In one respect Australian practitioners have caused disappointment. Some of those who have contributed to Branch discussions or shown patients at clinical meetings have displayed a curious unwillingness to submit their contributions for publication. If a contribution is good enough for a Branch meeting, it should be good enough for publication that it may reach those unable to attend the meeting in question. THE MEDICAL JOURNAL OF AUSTRALIA is, *inter alia*, a medium of post-graduate instruction, and whenever possible members of the Branches should use it as such. During the year a Health Council was appointed in Western Australia. It had been felt for a considerable time that the State Health Department and the State Medical Department should be reorganized. Dr. C. E. Cook, the Commissioner for Public Health, a far-sighted and able officer, drew up a plan for reorganization. His plan was acceptable not only to the Government, but also to the Western Australian Branch of the British Medical Association. The function of the Council, which will act under the Minister, will be to consider all health and medical problems with a view to formulating and submitting medical policy to the Government. The particular matters with which it will deal are: (*a*) The preparation of legislation under the *Hospitals Act* to regulate the management of public hospitals and the conditions of medical and nursing practice therein. (*b*) The preparation of health legislation designed to implement its policy throughout the State and in local authority areas. (*c*) The education of local authorities and the public in hygiene and preventive medicine. (*d*) The collection and study of health and medical information, the determination of policy and the issue of recommendations arising therefrom. (*e*) The standard of equipment to be provided in public hospitals. (*f*) The educational and training standards required for any of the ancillary professions which have no statutory registration board. The Council will consist of the following: (i) The Commissioner of Public Health, as chairman. (ii) A physician elected by the specialist physicians of the State. (iii) A surgeon elected by the practising surgeons of the State. (iv) An obstetrician elected by the specialist obstetricians and gynæcologists of the State. (v) A pædiatrician elected by the specialist pædiatricians practising in the State. (vi) Two general practitioners nominated by the Western Australian Branch of the British Medical Association and representing country practitioners. (vii) Two general practitioners nominated by the Branch and representing metropolitan practitioners. (viii) A layman representing local authorities. A representative from the Department of Public Health will act as secretary. Members of the Council will serve in an honorary capacity and will hold office for one year. The establishment of this Council has been welcomed by the practising members of the profession in Western Australia and it certainly appears that the new body will have an opportunity to initiate measures likely to maintain and improve the health of the community. Another event of importance is the recent appointment of Dr. Lorimer Dods

to be Professor of Child Health in the University of Sydney. The appointment brings Sydney into alignment with some seven or eight universities in Great Britain which have created chairs of child health since the recent war—before the war only two or three such chairs were in existence. The Sydney appointment stands to the credit of the Commonwealth Government. In the immediate years before the war Sir Robert Wade advocated the creation of a chair. He incorporated his views in the Sir Charles Clubbe Memorial Oration in 1945. (See THE MEDICAL JOURNAL OF AUSTRALIA, August 4, 1945, page 133.) The Federal Council of the British Medical Association in Australia took up Wade's suggestion and in 1946 recommended the establishment of a chair of child health. In August, 1946, a subcommittee appointed by the University of Sydney is understood to have reported that the establishment of a chair of child health was not an urgent matter and would not lead to any substantial improvement in the teaching of students. The subcommittee did express the view, however, that there was need for post-graduate courses in child health. The upshot is that the Commonwealth Government has established an Institute of Child Health in association with the School of Public Health and Tropical Medicine and the Royal Alexandra Hospital for Children. The director of the Institute is Professor of Child Health in the University of Sydney. The scope of the chair may best be described by emphasis on its name—it is not a chair of diseases of children or of pædiatrics; the wider term "child health" is self-explanatory. The institute will be housed temporarily at the Royal Alexandra Hospital for Children; it will be concerned with undergraduate and post-graduate teaching, and also with the promotion of research and with public health problems of infancy and childhood. Two other events of importance in 1949 have been the passage of the *Tuberculosis Act*, 1949, in Tasmania and the creation of an Australian Rheumatism Council—both these happenings have been discussed in these columns. In the purely medico-political field the most important events of the year were those connected with the passage by the Federal Government of *The Pharmaceutical Benefits Act*, 1947, and the *National Health Service Act*. The action before the High Court of Australia in which *The Pharmaceutical Benefits Act* was held to be invalid is fresh in the minds of readers. The *National Health Service Act* was amended in certain respects just before the session of Parliament ended.

So much for our retrospect. In our prospect we may begin with the legislation of the Commonwealth Government. There is no need for long comment. On December 10, 1949, the people of Australia went to the polling booths and decided to return to power a new parliamentary party. The members of the medical profession must try to approach the problem of national health in a non-political atmosphere. The present is a kind of interregnum. The point on which stress should be laid is that, regardless of what party is in power at Canberra, the medical profession must strive by every possible means to achieve its health policy. It is possible to imagine a state of affairs in which Federal and State Governments might cease for a time at least to worry about a national health service, "free medicine" and other public matters. If this did happen—it is not likely to—the medical profession would still be in duty bound to press for all the advances mentioned in the Federal Council's declaration of policy. This must be the new year resolution of Australian medicine as a whole. Other matters come to mind. In this year we look forward to the seventh session of the Australasian Medical Congress (British Medical Association) at Brisbane—this will be discussed in a week or two in a special article. The British Commonwealth Medical Conference will meet at Brisbane and the World Medical Association will meet at New York. For the individual practitioner there will remain the courses of study to which he may apply himself and his individual effort, apart from set courses. In this we hope that THE MEDICAL JOURNAL OF AUSTRALIA may help him. Plans are formed for the expansion of The Printing House and the installation of new printing machinery that a better medical journal may be produced and that the medical profession may have printing facilities that will meet all its needs. So far the plans have been frustrated owing to building restrictions and housing legislation. The directors of the Australasian Medical Publishing Company, Limited, are in hopes that difficulties will, before long, be overcome. The message for 1950 in every sphere of Australian medicine is one of hope and confidence.

Current Comment.

SPEECH THERAPY.

AMONG the various forms of therapy which are concerned with the restoration of function after illness or injury, and its establishment where it has been hitherto unsatisfactory or incomplete, speech training has an important place. Nevertheless, hospitals and clinics have not cultivated this specialized work as fully as it deserves. H. St. John Rumsey, in a brief article on the speech clinic at Guy's Hospital, describes its early neglect and its gradual recognition and success.[1] He first started this work at Guy's Hospital twenty-six years ago, when, apart from the speech clinics of the London County Council and a few other voluntary hospitals, there was only restricted interest in the subject. After ten years of slow progress successful steps were taken to coordinate the work with the activity of other departments, and clinical lectures were given in the teaching school. Now patients were regularly referred from other departments, and from outside sources, and speech therapists trained in the clinic were in demand. Since then a College of Speech Therapists has been formed, which enjoins a three years' course of study and training with qualifying examinations. It is interesting to read how the greater popularity of the clinic might have been its undoing, for a large number of children attended who merely had backward speech, which could be corrected by an intelligent teacher or parent. These patients were seen only once, and the necessary advice was given, so as to avoid overcrowding, with its real danger of neglect of those badly needing special measures. If expert handling was needed the child attended until treatment was successfully completed. Almost as many patients with harelip and cleft palate attended as those with backward speech, but the largest number were the stammerers, who comprised over 70% of the total. By elimination the backward speakers were reduced to one-sixth of those originally attending, more time being given for the others.

Adaptability is, of course, an important factor in the speech training of children with cleft palate; it was found that some were so cooperative that they eventually replaced an almost unintelligible articulation with a high standard of speech which could be attained even without a denture.

There was great demand for training of stammerers, and nearly half of these were over the age of sixteen

[1] *Guy's Hospital Reports*, Numbers 3 and 4, 1948.

years. Rumsey states that in private practice less than one-third of the patients who stammer are under the age of sixteen, but the introduction of the National Health Service is expected to alter this. He makes some interesting observations about ætiology, and explodes the popular notion that shock is a common cause. During the war he saw only one such case. In the clinic the treatment of these patients was based on the hypothesis that stammering is due to a bad speech pattern, and efforts were directed to changing the invariably quick, high-pitched and jerky speech into a slow, firm, smooth pattern, thus training each individual along the lines of the methods necessary for acting and public speaking. It was not found that anxiety was a cause of stammering, but rather a result; it disappears as reeducation becomes successful. The average time needed for treatment was about three months, but sometimes great improvement could be effected in a much shorter time. Finally, and perhaps most interesting, is the experience of the Guy's Hospital clinic that four-fifths of the patients had not availed themselves of the facilities offered by the London County Council, and one-fifth had already done so and then transferred to the clinic at Guy's Hospital. Of course, no estimate can be given of the numbers who tried more than one clinic, but it seems likely that the more individual methods used at Guy's Hospital appealed more to the patients. At the London County Council speech training centres the methods used were general relaxation and chorus reading. Rumsey remarks that it is difficult to teach relaxation to children lying on a floor and that in any case all stammerers can read in chorus aloud. There is perhaps in this, without any disparagement of existing facilities, a warning of the troubles ahead when all branches of medicine become less individual, of which development there seems to be some danger. Mass psychiatric therapy has been practised considerably also, but here success would not be expected unless this method was only one corporate phase in the handling of a series of individuals for whom a careful interpretation of the expression "the common touch" is essential.

NOISE AND THE DAMAGE OF HEARING.

THIS is a noisy age and in the United States of America they are particularly well supplied with sources of noise, or so it would seem. W. E. Grove[1] has pointed out that since the first world war the United States has rapidly become the world's greatest industrial nation; and "where metal strikes on metal there is bound to be noise". The result is a serious industrial problem to which increasing attention is being paid. As Grove summarizes it: "A long-continued high intensity noise impairs nervous and mental health, reduces efficiency as a production tool and damages hearing function." Certain facts, he asserts, are incontrovertible: exposure to extremely loud sounds over a long period results in impaired hearing; the louder the sound, the greater is the impairment over a similar period; the longer the period of exposure to the same sound level, the greater is the hearing impairment. While all ears are probably susceptible to high-intensity level sound, they are probably not equally susceptible; ears with a pre-existing conduction lesion are probably less susceptible than ears with normal hearing, and the ears of the young are probably more susceptible than those of middle or advanced age; but more data are needed on all these points. There is considerable difference of opinion about the decibel level above which noise is injurious, and Grove quotes various figures. However, he considers that for its effect on the hearing function noise of less than a 90-decibel level can safely be disregarded. Lists of sources of noise and their respective degrees of loudness are quoted from several investigators. There is little to be gained from quoting the details of industrial noise sources, the level of many of which is well above the level of safety; but it is of interest to note that the noise level of an ordinary office is about 40 decibels, that of a busy street about 65 decibels, and that of heavy traffic about 80 decibels. Noise of high intensity is generally believed to be more injurious to the hearing when it is of high pitch than when the pitch is lower. In human beings the basal coil of the cochlea seems to be its most vulnerable spot. Other factors to be considered are the total length of exposure and exposure per period; the continuous or interrupted nature of the sound stimulus and the length of interruptions; the presence or not of reverberation; the age of the worker, and the presence of previous ear or associated disease. If we approach the question from the point of view of the hearing rather than of the noise, we find that the hearing defect caused by prolonged exposure to loud noise is greater for high tones than for low tones. While the initial effect of exposure to loud noise involves the hearing for high tones only and is therefore not easily discernible by the person exposed, the longer the exposure, the more likely is a gradual loss of hearing in the range of frequencies concerned in speech. "The development of this noise deafness is slow and insidious, and the worker is apt to disregard it until he is rather deaf, particularly if he has a well-paid job."

No form of treatment is effective once the lesion in the neuro-epithelium of Corti's organ has occurred. Prevention of the lesion is, therefore, the only means of attack. Sounds of injurious intensity must be prevented from reaching the ear. Measures for education and general propaganda are also necessary. In the United States efforts are being made to interest insurance bodies and employers, with more success in relation to the former than the latter, though some employers have been able to see that the problem is of importance from the business aspect as well as other aspects. It is felt that to attack the problem pilot plants must be set up in some industry in which noise is a special health factor; in these the problem could be intensively studied and protective and preventive measures be worked out. A small amount of work on these lines has already been done. It is also considered that a careful preemployment examination should be made of every person who is to be placed in an operation in which the noise level exceeds 90 decibels; audiometric examination should be included in this examination and repeated after one week, one month and six months. Preventive measures are of three types: first, the redesigning of buildings and machinery to permit less noise operation—a costly procedure which is probably of limited practical value; second, the removal or transfer of a worker with especially noise-sensitive ears to some less noisy operation; third, the reduction of injurious noise at the ear of the worker, an apparently simple problem which is actually full of practical difficulties. Indeed, the whole question of noise in industry is full of knotty problems, of which Grove's discussion probably gives only a glimpse. American investigations and developments will no doubt be watched with interest in this country as our industrial development proceeds. It may even be that the stimulation of interest in this problem because of its industrial significance may provide information to help the whole community. The problem of noise is a vital one in a far wider field than that of heavy industry; it affects very many more than those who are exposed to the measured degree which permanently endangers the hearing mechanism. In this year's Sir Richard Stawell Oration (see THE MEDICAL JOURNAL OF AUSTRALIA, December 3, 1949) Major-General F. Kingsley Norris has touched on many aspects of this wider problem, and we need not further elaborate here what he has called "a product and a penalty of our progress". It is sobering when reading his enumeration and discussion of sources of noise to reflect on just how strange and relative a word is "progress". Perhaps we may not be enamoured of General Norris's "flight of fancy" which would suggest that an excursion into evolution in reverse might help us back to a less noisy age; but at least we might plead for a slowing of the wheels of progress and one minute's silence from the hum, shriek and clatter of the modern world so that the successful crusade against unnecessary noise, which he so rightly urges, may be planned and launched in quiet.

[1] *The Journal of the American Medical Association*, June 25, 1949.

Abstracts from Medical Literature.

OBSTETRICS AND GYNÆCOLOGY.

The Surgical Anatomy of Extraperitoneal Cæsarean Section.

G. A. BURGEOIS AND L. E. PHANEUF (*American Journal of Obstetrics and Gynecology*, February, 1949) present the surgical anatomy of extraperitoneal Cæsarean section from the points of view of anatomy, planes of dissection, anatomical approaches to the lower uterine segment and the technique developed from the foregoing. The peritoneum descends from the dome or supravesical area of the partly distended bladder to form a parietovesical peritoneal reflection anteriorly, right and left paravesical reflections laterally and a utero-vesical reflection posteriorly. The configuration and level of attachment of the peritoneal reflection vary considerably—the parietovesical reflection usually lies symmetrically over the bladder with a downward convexity. The utero-vesical reflection ordinarily extends lower on the bladder than the parieto-vesical reflection and lies in a fairly even transverse manner over the lower uterine segment. Over the bladder dome areolar tissue predominates in the outer connective tissue layer of peritoneum, but it is usually absent to some extent, with the result that for clinical purposes a varying degree of serous peritoneum is inseparable from perivesical fascia. The perivesical fascia is intimately coapted to bladder muscularis throughout, and in the supravesical area, where it may be exceedingly thin, it is often just as closely coapted to varying degrees of serous peritoneum. Posteriorly the perivesical and periuterine fasciæ blend loosely inferior to the utero-vesical peritoneal fold; the serous peritoneum is attached by loose areolar tissue to the plane of junction of these fasciæ and is adherent posteriorly to periuterine fascia, while it may or may not be adherent anteriorly to the perivesical fascia. In the experience of the authors the most reliable procedure for the exposure of the lower uterine segment by an extraperitoneal approach is a bilateral paravesical dissection followed by retrovesical separation of the bladder from the lower uterine segment, with dissection of the peritoneum from the bladder in the supravesical area and finally from the lower uterine segment. This approach to the lower uterine segment utilizes the easiest planes of dissection.

Vesico-Vaginal Fistula.

L. E. PHANEUF AND R. C. GRAVES (*Surgery, Gynecology and Obstetrics*, February, 1949) trace the history of repair of vesico-vaginal fistula and describe an intravesical operation for certain difficult cases. Credit for the first use of silver wire sutures belongs to Montague Gosset, of London, in 1834, but Marion Sims independently developed a technique in 1849 which resulted in the systematic treatment and cure of vesico-vaginal fistula. Trauma at childbirth was formerly the commonest cause of vesico-vaginal fistula, but the condition is now most frequently found after pelvic surgery. Irradiation treatment and pelvic carcinoma are other causes. Three surgical principles govern the success of operative repair: satisfactory exposure of the fistula, suitable suture material, and keeping the bladder empty during the process of healing. Post-operative fistulæ may be situated high in the scarred vaginal vault, and closure may be difficult by the vaginal approach. The operative treatment is a combined gynæcological and urological problem, entailing preliminary cystoscopic examination, determination of the relation of the opening to the ureters and urethra, and investigation of the upper part of the urinary tract. The elimination of urinary infection is important in pre-operative treatment. Rustless alloy steel wire or fine chromicized catgut are the sutures of choice. Mention is made of various methods of closing vesico-vaginal fistulæ by the vaginal route, the suprapubic extraperitoneal and intraperitoneal routes, and implantation of the ureters into the colon. The authors describe and illustrate a technique of intravesical closure of difficult fistulæ which cannot be exposed through the vagina. The bladder is opened, the fistula is demonstrated and ureteral catheters are passed. The margin of the fistula is incised, and the bladder and vagina are mobilized. The vaginal opening is closed with interrupted chromicized sutures, and the bladder opening is similarly closed with one or two layers of sutures. A mushroom catheter drains the bladder suprapubically, and a small rubber drain is placed on each side of the bladder. Meticulous post-operative care and a high fluid intake provide the best insurance against urinary obstruction. The authors report 40 operations for the cure of vesico-vaginal fistula, four of which were performed by the intravesical method. Suprapubic drainage of the bladder and post-operative care in avoiding bladder distension and infection are important features of their technique.

Retroperitoneal Lymph-Node Dissection in Cervical Cancer.

J. V. MEIGS, L. PARSONS AND I. T. NATHANSON (*American Journal of Obstetrics and Gynecology*, June, 1949) consider that there is doubt as to the effectiveness of X-ray therapy in dealing with extension of carcinoma of the *cervix uteri* to the regional lymph nodes. Moreover, the majority of patients die with the disease sharply confined to the pelvis. On this assumption the authors advocate and describe surgical treatment in the form of retroperitoneal lymphadenectomy for the removal of iliac, hypogastric and obturator lymph nodes. The operation is usually performed in two stages at intervals of one week four to nine months after radiation treatment. The incision is made as for inguinal herniorrhaphy, the round ligaments are identified, the inguinal canal is opened and the deep epigastric vessels are traced to their origin from the external iliac vessels. The peritoneum is stripped back, the psoas muscle thus being exposed laterally and the bladder medially. The dissection of glands commences from the inguinal ligament and proceeds upwards along the common iliac vessels to the bifurcation of the aorta. The dissection is then carried down along the hypogastric artery. It is inadvisable to attempt iliac gland resection and obturator gland resection as a block dissection. The obturator glands are better removed separately. The authors consider that better exposure of the glands can be obtained by this approach than by the abdominal transperitoneal route. There has been a mortality rate of 4% with the operation. Morbidity after operation is low, and patients are not prone to develop hernia. Mistakes have been made in the evaluation of local cure of the growth by radium because 14% of patients had local recurrence of cancer after dissection of the glands; 28% of patients had lymph nodes involved by carcinoma after complete radiation treatment. The authors consider that immediate results are encouraging, but the operation of retroperitoneal lymph node dissection following complete radiation therapy for carcinoma of the cervix must be considered to be in the experimental stage.

Primary Dysmenorrhœa Treated by Neurectomy.

O'DONEL BROWNE (*American Journal of Obstetrics and Gynecology*, June, 1949) states that he does not know the exact ætiology of primary dismenorrhœa, but considers that there are definite nerve lesions in the presacral and/or ovarian systems and that menstrual pain can usually be relieved by appropriate and thorough nerve division. He considers that menstrual pain may be uterine, ovarian, or mixed uterine and ovarian in origin. It is important, in his opinion, to make an exact diagnosis of the type of pain before performing presacral neurectomy or ovarian denervation. An analysis of failures in the 82 cases studied prompts the author to suggest that unless diagnosis is precise, it is better to use the combined operation of presacral sympathectomy and bilateral ovarian denervation. Primary uterine dysmenorrhœa occurred in 41% of cases; it is characterized by pain which begins with the menstrual flow and is usually accurately localized to the suprapubic region. The passage of a sterile uterine sound usually elicits this type of pain. Primary ovarian pain was present in 26% of cases; it is commonly referred to either side of the abdomen and is typically premenstrual. This pain is more dragging in nature and associated with nausea. Dysmenorrhœa of ovarian origin can be diagnosed by the production of pain similar to menstrual pain on bimanual compression of the ovary. Diffuse lower abdominal pain probably indicates a mixed dysmenorrhœa of uterine and ovarian origin. Preliminary trial of hormonal treatment, cervical dilatation and uterine curettage should be reserved for primary uterine pain. Intolerable menstrual pain usually reaches a climax between the ages of twenty-three and twenty-four years, but the pain of ovarian origin has an earlier onset than that of uterine origin. Sclerocystic changes in the ovaries are of importance in ovarian dysmenorrhœa and were present in all the author's cases. He agrees with French workers who consider sclerocystic changes are secondary to the influence of some ovarian nerve lesion. It is generally accepted that the uterine and ovarian nerve supplies are independent and that ovarian innervation is bilateral. The ovarian function and cycle are under hormonal control, and both are unimpaired by nerve section except that pain impulses cannot subsequently spread thence to the higher

centres. The author's technique of ovarian denervation consists of simple division of both infundibulo-pelvic ligaments and ligation and approximation of the stumps. Results were successful in 80% of cases in which the patients were treated with ovarian denervation alone, in 73·5% treated with presacral sympathectomy, and 82% treated with combined presacral sympathectomy and bilateral ovarian denervation. Subsequent labours were normal, fertility was unimpaired, and there were no bladder or bowel complications after these operations. Histological studies of nervous tissue removed showed degeneration and destruction of sympathetic ganglion cells, degeneration of post-ganglionic fibres and replacement fibrosis in the nerves. The author considers it wrong to withhold nerve section in intractable cases if it is likely to afford relief.

Endometriosis of the Vulva.

EMIL D. ROTHMAN (*The Western Journal of Surgery, Obstetrics and Gynecology*, July, 1949) briefly reviews eleven reported cases of vulval endometriosis from the literature and records an additional case. All cases reported have been in women in the menstrual age, and a previous history of trauma and infection is frequent. In the case reported the patient was a white girl, aged sixteen years, who first complained of vaginal discharge, which had commenced two years previously after a fall from a bicycle which resulted in perineal trauma. Fifteen months later the patient developed pain and swelling of the vulva and a hæmatoma of the left *labium majus* was noticed. Further episodes of pain and swelling of the vulva occurred, making the patient seek treatment at three to six monthly intervals. After incision and drainage of a bluish tumour of the labium on three occasions, the condition settled for eighteen months. Recurrence of swelling and pain during menstruation led to the diagnosis of endometriosis, and resection of the *labium majus* was performed. The diagnosis of endometriosis was confirmed by biopsy. The author discusses possible explanations of vulval endometriosis and comments on the rarity of the condition. Cell rests of Wolffian or Müllerian origin occurring in the round ligament are mentioned. The metastatic theory of lymphatic spread of endometrial tissue is a possibility, but the serosal theory does not appear to be applicable in this case. The implantation theory best explains the origin of this condition. Pain and swelling of the vulva, increasing before the onset of the menstrual periods and subsiding at their completion, are pathognomonic symptoms.

Pruritus Vulvæ et Ani.

WILLIAM M. WILSON (*The Western Journal of Surgery, Obstetrics and Gynecology*, September, 1949) describes a detailed technique of alcohol injection in the treatment of intractable *pruritus vulvæ et ani* and records the results of treatment of 49 patients. All patients had chronic symptoms, which were intractable to other forms of treatment. The treatment consists in multiple subcutaneous injections of 95% alcohol given at intervals of approximately one-half inch over the entire area involved by pruritus. The area of pruritus is delineated with the cooperation of the patient, and injections are then given with the patient under general anæsthesia in the lithotomy position. A two-millilitre syringe and a 25-gauge needle are used, and injections of two to four minims of alcohol are made into the subcutaneous tissue just below the skin. Injections into the skin or into the deep layers of the subcutaneous tissue may produce sloughing. Judgement of the spacing and quantity of alcohol to inject depends on the extent of pruritus, the age of the patient and the circulation of the parts. The clitoris is a difficult area to inject and, probably because of this, failures and recurrences are more common in this area. Alcohol injection is followed by swelling and induration, frequently associated with discomfort and tenderness. Œdema subsides gradually after twenty-four hours, and after one week there remain some brawniness and a chain of small, indurated nodules. Itching usually ceases immediately, but often one or more small areas of residual pruritus necessitate further treatment. Skin lesions have been noticed to heal with rapidity after injections and, microscopically, improvement has been observed in chronic inflammatory changes associated with pruritus. Complete relief of pruritus without recurrence for periods varying from one to ten years was experienced by 34·7% of patients; 16% had almost complete relief, but continued to have residual mild pruritus; 50% of the patients submitted to treatment experienced relief adequate to justify the performance of this procedure. Major complications among the 120 patients treated were few in number and did not detract from results. Temporary loss of anal sphincter control occurred in two cases and abscesses of the *labia majora* developed in four cases.

Tuberculous Ulceration of the Vulva.

A. G. MATHEW (*The Journal of Obstetrics and Gynæcology of the British Empire*, June, 1949) discusses tuberculous ulceration of the vulva and reports one case of successful treatment with streptomycin. He states that tuberculous disease of the female reproductive organs occurs only in some 0·6% to 2·0% of all gynæcological cases, and in only 1% to 2% of these are the external genitalia involved. The order of frequency of organs involved in tuberculosis of the genital tract is: uterine tubes, *corpus uteri*, ovaries, cervix, vagina and vulva. The infrequency of vulval tuberculosis is probably due to the resistance of squamous epithelium to bacterial invasion. Some cases may develop from contamination by infected urine, fæces or semen. The vulval lesion usually commences as a dusky red nodule near the clitoris, meatus or posterior commissure, which ulcerates and spreads. Healing may occur spontaneously with extensive scarring, or the ulceration may spread to the bladder or bowel and result in fistulæ. Conditions important in the differential diagnosis include syphilitic ulceration, esthiomene, soft sore, herpes and carcinoma. Pain, tenderness, pruritus and discharge are the outstanding clinical symptoms. The patient in the case reported was a multiparous woman, aged seventy-seven years, who had had a normal menopause thirty-four years previously. Panhysterectomy had been performed nine years previously for early *carcinoma corporis uteri*. Extensive chronic ulceration was present over the inner surfaces of the *labia majora* and fourchette, which spread into the vagina. Biopsy strongly suggested tuberculous ulceration, and positive findings from examination of scrapings from the ulcer confirmed the diagnosis. Tubercle bacilli were isolated from the urine, and subsequent cystoscopy indicated old tuberculous disease of the bladder. After unsatisfactory results were obtained with copper hydroxyquinoline, streptomycin was given parenterally and locally. Doses of 0·5 gramme were given intramuscularly twice daily for forty-one days, and gauze packs were applied soaked in a solution of twenty grammes of streptomycin per millilitre of saline solution. Improvement in the ulcer was remarkable, and this continued after treatment was suspended. The ulcer was quite healed within a period of four months from the commencement of treatment, and a minimal amount of scarring resulted. Streptomycin was given to this elderly patient in large doses with very little harmful effects. The author considers that in some cases surgical excision, local X-ray treatment *et cetera* for tuberculous lesions of the vulva can be supplanted by combined local and parenteral administration of streptomycin.

Tuberculosis of the Endometrium.

E. RABAU, J. HERMAN AND J. CASPER (*Gynæcologia*, April, 1949) have investigated 1300 cases of sterility and found that endometrial biopsy showed the presence of endometrial tuberculosis in 59 cases. They state that endometrial tuberculosis is a recognized cause of sterility, its incidence is more common than is generally estimated, and diagnosis is difficult without repeated biopsies. A survey of eight years' work showed that none of the 59 patients suffering from tuberculous endometritis conceived in spite of the fact that many had patent Fallopian tubes and normal menstrual cycles. The authors consider that this disease causes complete and incurable sterility, whether or not it is associated with tuberculous salpingitis. Tuberculous endometritis, in general, remains quiescent, provided the endometrium is not touched. Endometrial biopsy, tubal insufflation or salpingography may be followed by tuberculous adnexitis. In a few cases the lesion may caseate and spread, and spontaneous cure is also a possibility. Conservative treatment of tuberculous disease of the reproductive organs has yielded good results, but recurrence may compel surgical treatment. Timely operation is necessary for tuberculous adnexitis. Intrauterine application of radium (500 to 600 milligramme-hours) was given to thirteen patients with endometrial tuberculosis without good effect, and histologically the disease was found to have been aggravated. The authors consider that tuberculous salpingitis can be dealt with satisfactorily by removal of the tubes, the uterus and ovaries often being conserved when the latter are not involved by active disease. They are reluctant to leave the uterus with a tuberculous focus, even though it is quiescent, but consider that removal of the tubes alone saves a radical operation and can be followed by satisfactory results.

British Medical Association News.

SCIENTIFIC.

A MEETING of the Victorian Branch of the British Medical Association was held on October 18, 1949, at the Victorian Eye and Ear Hospital, East Melbourne. The meeting took the form of a series of clinical demonstrations by members of the honorary medical staff of the hospital. Part of this report appeared in the issue of December 17, 1949.

Angiomatosis Retinæ.

DR. S. R. GERSTMAN presented a male patient, aged thirty-five years, who had presented on July 16, 1948, with defective vision in the right eye due to a vitreous opacity. Examination of the *fundus oculi* had revealed dilated and tortuous temporal vessels running from the optic disk to the periphery, where was situated a mulberry-like tumour. The condition was treated by surface and penetrating surgical diathermy applied to the area of the tumour on September 10. Examination of the eye at the time of the meeting revealed dilated retinal vessels passing to an area of chorioidal atrophy, at the lower margin of which could be seen the remains of a retinal tumour. The visual acuity in the right eye was $^6/_9$.

DR. RONALD LOWE thought that the presence of the retinal tumour and the dilated vessels showed that the condition was still active and that further treatment was indicated.

DR. MAX YUILLE said that he had been most disappointed with the immediate post-operative results, when the chorioid was nicely burnt, but the tumour appeared to be unaltered; but since then the tumour had steadily retrogressed and he thought that it should be watched further.

Ptosis Treated with Fascia Lata Graft.

Dr. Gerstman's second patient was a boy, aged twelve years, who had had unilateral ptosis and convergent squint of the left eye since birth. The squint had been corrected by recession of the left internal rectus muscle and resection of the external rectus. An attempt had been made to correct the ptosis by a Blaskovicz's operation, but that was not successful. One year before the meeting a *fascia lata* graft had been inserted in two strips to attach the lid margin to the frontalis muscle. At the time of the meeting the upper lid of the left eye was at the same level as that of the right, and the eyes were parallel. There was still a minor degree of asymmetry between the arch of the two lids.

Arcus Juvenilis.

DR. MAX YUILLE showed a male patient, aged twenty-five years, with symmetrical opacity of each cornea at the periphery. The vision of each eye was good, and the opacity had been present since adolescence. Examination showed an *arcus juvenilis*, most pronounced at the upper and lower margins of each cornea.

Asteroid Hyalitis.

DR. A. L. CUNNINGHAM then showed a female patient, aged fifty-six years, who complained of poor vision in the left eye for some years; the vision had become worse recently. The vitreous of the left eye presented the appearances of asteroid hyalitis. The fundal details of the left eye could not be seen clearly, but the vessels appeared normal. The fundus of the right eye was normal.

External Dacryocystorhinostomy.

DR. WALTER WILLIAMS showed a woman, aged sixty-five years, who had undergone a left dacryocystorhinostomy on the day of the meeting for recurrent attacks of acute dacryocystitis, the last attack being two weeks before. The operative details of the case were discussed; the important points were that a large thick-walled sac was incised with liberation of glairy mucopus, that anterior and posterior flaps were cut in both sac wall and nasal mucosa, and that the flaps were sutured together. Post-operative care consisted of penicillin cover for five days and washing through of the sac on the fourth day after operation and again two weeks later.

Keratosis Pharyngis.

Dr. Williams's next patient was a man, aged fifty-five years, who had reported to the hospital complaining of a bad taste in the mouth. The X-ray appearances of the sinuses were normal. The clinical findings were those of *keratosis pharyngis*. In that condition, Dr. Williams pointed out, white chalk-like formations were seen projecting not only from the surfaces of the palatine tonsils, but whenever there was lymphoid tissue in the area known as Waldeyer's ring. The projections could not be wiped off and consisted of localized cornification of the epithelium without invasion of the subepithelial tissue. If symptoms were slight no treatment was called for. The projections might be curetted and galvanocautery applied. In severe cases tonsillectomy might be advisable.

Right Recurrent Nerve Paralysis.

Dr. Williams then presented a male patient, aged forty-four years, who had been referred to the hospital on account of hoarseness of the voice for three months which had not responded to local treatment. Examination showed that the epiglottis overhung the larynx and tended to move to the left on phonation. Dr. Williams said that the ætiology of the right recurrent nerve paralysis in the case under discussion had not yet been investigated. Some causes of such paralyses were carcinoma of œsophagus, aneurysm of the innominate or right subclavian artery, tumours of the neck, thickening of the pleura over the apex of the right lung, thyreoid gland operations, diseases of the medulla and certain progressive nervous diseases. However, in many cases the cause was never found. In the particular case being considered the fixation was likely to be permanent since it had been present for over three months.

Hæmatoma of Vocal Cord.

Dr. Williams's last patient was a man, aged thirty-three years, who had attended the hospital on September 26, 1949, complaining of sore throat and huskiness. Examination revealed subacute laryngitis with organizing hæmatoma on the left vocal cord close to the anterior commissure. Both tonsils were unhealthy. Dr. Williams said that "organizing hæmatoma" was probably the commonest kind of non-neoplastic tumour of the larynx. Hæmatomata developed as a result of voice strain, as in shouting or forceful speaking or singing. Their pathological development was that of hæmatoma anywhere, and, after a time, they underwent organization. In their early stages they might simulate angioma; in their later stages, fibroangioma or fibroma. Clinically a hæmatoma appeared as a rounded reddish mass of tissue on the cordal margin, which interfered with phonation. Treatment was by direct laryngoscopic removal, or, in some instances, removal under the guidance of the laryngeal mirror. In either case, great care should be taken to remove the mass superficially without damaging the underlying normal tissue of the cordal margin. Any coincident abnormality in the nose or throat should receive appropriate treatment. In the case under discussion the tonsils were removed.

Cartilage Graft to Traumatic Nasal Deformity.

DR. FRANK DONOVAN showed a man, aged twenty-three years, who had suffered a compound fracture of the nose nine years previously, causing a deviation of the nasal septum, which had been corrected by a submucous resection of the septum two years later. The external saddle deformity was corrected by the insertion beneath the skin of the bridge of the nose of a strip of cartilage obtained from a costal cartilage The appearances before and after operation were recorded by front view and side photographs; a great improvement in the patient's appearance had been effected. Dr. Donovan described the various nasal plastic procedures employed in such cases.

Left Supraorbital Abscess.

DR. HEDLEY SUMMONS presented a woman, aged sixty years, who had been admitted to the hospital on October 14, 1949, with frontal headache for three weeks; the headache had been much more severe for the last three days and was localizing over the left eye. Examination revealed a red, firm swelling of the left upper lid, with tender induration over the lateral part of the roof of the orbit. Proof puncture of the antra produced thin, offensive pus. Chemotherapy was commenced, but the condition did not resolve. X-ray examination on October 16 showed loss of air content in all accessory nasal sinuses with breakdown of bone in the frontals; the orbital margin on the left side was indistinct, and there appeared to be a break-through in the fronto-ethmoidal region; to the lateral side of the left frontal sinus was an area of increased translucency with sharply demarcated edges. Operation was immediately undertaken, and pus was found beneath the periosteum of the roof of the orbit, the bone of which was deficient. A drain tube was inserted into the cavity, which was thought to be the frontal sinus. Further X-ray examination was made on

October 19, and this revealed that the tube was in the lateral translucent area, which was situated behind the inner table of the skull and was not in the frontal sinus. The condition was regarded as one of frontal sinusitis with extradural abscess, but the possibility of other rare cystic conditions of that region was being considered.

Otitis Media due to Eustachian Tube Obstruction.

Dr. Summons then presented a male patient, aged seventeen years, to show the importance of Eustachian tube obstruction in the persistence of *otitis media*. The left ear had been discharging for six weeks. Paracentesis of the tympanic membrane was performed on several occasions, when blood-stained mucus was obtained. Inflations with a Eustachian catheter were carried out, and a considerable amount of mucoid material was obtained from the middle ear cavity. The Eustachian tube was patent at the time of the meeting. The condition under discussion frequently led, Dr. Summons pointed out, to conductive deafness, later to adhesions. The maintenance of adequate tubal drainage and patency was stressed.

Mastoiditis.

Dr. Summons's last patient was a female infant, aged ten months, who had been admitted to the hospital on September 30, 1949, with bilateral *otitis media* and a left-sided post-auricular swelling; the swelling was incised and the track into the mastoid antrum widened. Chemotherapy was administered and both ears healed. On October 13 the bilateral *otitis media* recurred, and the left mastoid swelling reappeared. The left mastoid was reopened and the cavity enlarged and granulation tissue cleared. A "break-through" of the medial wall was found. The cavity was packed, and the incision was not sutured. Dr. Summons commented that the case showed that chemotherapy was not an alternative to adequate mastoid surgery.

Operative Procedures.

DR. MARK ASHKENASY showed a series of motion pictures illustrating tonsil dissection with the sucker dissectors, a conservative mastoid operation and endoscopy procedures.

Tonsillectomy with Sucker Dissectors.

The instrument shown for tonsillectomy was made to the shape of ordinary tonsil dissectors, but with drilled centres, so that the operator had complete control of the blood in the tonsillar operation field and vision of the capsule was preserved during the whole dissection.

Conservative Mastoid Operation.

The film dealing with the conservative mastoid operation was in colour and showed an attico-antrostomy operation used in cases of chronic *otitis media* in order to preserve hearing. The essential point was the cutting of the bony bridge representing the posterior bony meatal wall down to the aditus and mastoid antrum without disturbance of the ossicles and without a skin flap. It was really a preparatory operation for radical mastoidectomy, which occasionally might prove necessary.

Œsophagoscopy and Bronchoscopy.

Œsophagoscopy and bronchoscopy were the subjects of an imported colour film illustrating the various relevant conditions and their appearances through the instruments. It was pointed out that the film covered difficult photography, which was just coming into its own as a method of teaching.

Aural Polypus.

DR. C. CANTOR showed a patient whose left ear had been discharging offensive pus for ten years. The patient had a large polypus which filled the whole meatus; it originated from the posterior meatal wall adjacent to the drum. X-ray examination showed both mastoids to be of the diploic type with complete acellularity. The polypus was associated with an area of periantral osteitis. It was decided that removal of the polypus and curettage of the area of osteitis at its base would probably cause cessation of the discharge.

Pansinusitis.

Dr. Cantor next presented a patient with pansinusitis, and demonstrated the method of proof puncture through the inferior meatus.

Endaural Mastoidectomy.

Dr. Cantor's last patient was one who had undergone endaural mastoidectomy two weeks previously. Endaural surgery was discussed.

Deviated Nasal Septum.

DR. ROY STEVENS presented a male patient, aged sixteen years, with nasal obstruction due to a deviated septum. The operative treatment of the condition was discussed.

Catarrhal Otitis Media.

Dr. Stevens's next patient was a girl, aged nine years, with left earache for two days. The left tympanic membrane was reddened, but there was no bulging of the drum. The management of such conditions was discussed. It was proposed that the patient presented should undergo tonsillectomy and adenoidectomy when the poliomyelitis epidemic was over.

Calcification of the Basal Ganglia due to Hypoparathyreoidism.

DR. JOHN BILLINGS presented a dark-skinned male patient, aged thirty-one years, who had been referred to the hospital on July 13, 1949, from the Mont Park Mental Hospital, where he was an inmate on account of epilepsy with bilateral cataract. Intracranial calcification was noted on X-ray examination of the skull, and Professor Schuller offered the opinion that it was due to calcification of the basal ganglia due to hypoparathyreoidism. X-ray examination of long bones showed some decalcification and bowing. The serum calcium content was 6·0 milligrammes per 100 millilitres. Hypoparathyreoidism explained well the combination of symptoms, namely, epilepsy, cataract and X-ray findings.

Leber's Optic Atrophy.

Dr. Billings next presented two patients with optic atrophy, both young male adults. The first patient had a definite family history of blindness with an onset in childhood (his mother and her sister being affected); the other patient had no family history, and the onset of blindness had occupied only three weeks. Other causes of optic atrophy had been excluded so far as possible, and the diagnosis was largely made by exclusion. Careful inquiry had been made into the possibility of methyl alcohol poisoning as there was a history of alcoholism in the parents, but that cause could not be substantiated.

Aneurysm of the Internal Carotid Artery.

Dr. Billings then showed a woman, aged fifty-six years, who had presented at Saint Vincent's Hospital with progressive palsy of the third, fourth and sixth nerves, and with pain and anæsthesia over the distribution of the ophthalmic division of the fifth nerve, the symptoms occurring over a period of six weeks. Arteriograms had revealed a saccular aneurysm of the internal carotid artery in the cavernous sinus. The common carotid artery had been ligated, the function of the fifth nerve had recovered and the motor palsies were recovering. The eye was open and the patient was troubled with diplopia.

Acromegaly.

Dr. Billings next presented a woman, aged forty-three years, who showed the signs of acromegaly in a gross form. When she was first examined there had been severe visual failure with upper temporal hemianopia. X-ray examination of the skull had revealed a tremendous enlargement of the pituitary fossa. Operation had been undertaken at the neurosurgical clinic of Saint Vincent's Hospital, and the tumour successfully removed. The vision had recovered and the visual fields were normal.

Optic Atrophy due to Syphilis.

Dr. Billing's last patient was a woman, aged thirty-five years, who had presented in the out-patient department complaining of gradual loss of sight over a period of twelve months. She had been treated at Saint Vincent's Hospital in 1943, when she had syphilitic osteitis of the right foot; three courses of neoarsphenamine were given. Vision was reduced to perception of hand movements in each eye, and the left eye was divergent. The optic disks were pale. The visual fields were restricted nasally. The ankle jerks were absent on the right side, there was some increased tonus of the right arm muscles, and the response in the right plantar reflex was upward. The possibility that the optic atrophy was not due to syphilis had been considered; X-ray examination of the pituitary region revealed no abnormality. The cerebro-spinal fluid contained no cells and 45 milligrammes *per centum* of protein. The result of a blood Wassermann test was positive with a titre of eight. It was felt that the syphilis was still active and that the optic atrophy was due to the syphilis rather than to the treatment. Five million

units of penicillin had been given intramuscularly, and the patient thought that her vision had improved, although improvement could not be demonstrated.

Demonstration of X-Ray Films.

DR. T. L. TYRER showed a series of X-ray films illustrating the normal and pathological appearances of the mastoid region, with particular reference to mastoiditis, both in the acute and in the chronic stages. He then demonstrated the X-ray films in a case of Paget's disease, which was unusual in that it had many of the features of *leontiasis ossea*; also the films relating to the patient with a pituitary tumour whom Dr. Billings had shown; in the latter group there was tremendous enlargement of the pituitary fossa. He followed these with a series of tomograms showing calcified aortic valves of the heart, and concluded with a series of X-ray films of the chest; some showed pulmonary silicosis in its various stages, and others illustrated that the appearances of a dilated œsophagus might be confused with those of mitral stenosis, the films in one case showing both conditions coexisting.

Orthoptic Demonstration.

Members of the orthoptic clinic demonstrated the instruments used in the measurement and diagnosis of ocular muscle anomalies and showed two patients. The first patient had a divergent squint with head tilt and abnormal projection; the left inferior oblique muscle was overacting, but the primary defect was difficult to determine. The second patient, who had an accommodative squint, had had orthoptic training and could maintain fusion without glasses.

Demonstration of Pathological Specimens.

DR. HUGH RYAN showed a series of pathological specimens illustrating interesting cases which had passed through his department during the previous six months.

Tumour of the Iris.

The first specimen was an eye which had been operated on for chronic glaucoma on June 7, 1949, when an iris inclusion operation was performed. The glaucoma progressed, and the eye became blind and painful and for that reason was excised on September 20. In the specimen was seen a mass of spindle-shaped cells, arranged in whorl formation on the anterior surface of the iris. They were surrounded by deeply pigmented cells and extended peripherally to invade the angle of the anterior chamber. The optic disk was deeply cupped.

Formation of Bone and Fat.

Two specimens of infantile eyes were shown. In one there was fat formation in the vitreous and in the other was bone formation in the retina.

Conjunctival Nævus with Malignant Change.

The next specimen had the following history. A pigmented patch had been present on the patient's conjunctiva since October, 1947. He was first examined in October, 1948, and was treated by the insertion of three radon seeds around the pigmented area. Scarring occurred around the tumour and involved the upper fornix in that region. On August 22, 1949, the area of scar tissue was excised including the remaining gold seed and the area of pigmentation. The defect was covered with mucous membrane from the mouth. In the specimen so removed was found considerable hypertrophy of the covering epithelium with downgrowths of epithelial cells, showing cell-nest formation, into the subjacent nævus cells.

Hæmangioma of the Chorioid.

The specimen then shown was a left eye which had been found to be defective in 1942. Since then the sight had failed completely and the eye had been painful at times. The patient presented with a blind eye with acute glaucoma, and the eye was excised. Section of the eye revealed a typical cavernous hæmangioma of the chorioid at the posterior pole; it measured ten millimetres by two millimetres. Extensive retinal detachment was present with broad peripheral synechiæ and associated glaucoma.

Limbal Dermoid Tumour with Carcinomatous Change.

The patient from whom the next specimen was taken had had a dermoid tumour of the limbus for many years, and recently a small white mass had appeared on the surface. It was removed, and examination of a section showed a typical epithelioma with cell-nest formation growing down into a sebaceous gland, which was the dermoid tumour.

Orbital Tumour.

The tumour which was the next specimen had been removed by exenteration of the orbit (the patient was presented by DR. K. LIDGETT). The complete specimen measuring five by five by four centimetres was mounted in "Celloidin" and cut as one section. The tumour was rapidly growing and composed of spindle cells arranged in bundles. Its nature was still uncertain.

Coat's Disease.

An eye was then shown which had been removed from a patient who had been an in-patient of the hospital in January, 1949, with a provisional diagnosis of acute suppurative chorioiditis; the condition had slowly settled down with chemotherapy and milk injections, a blind eye being left. The eye was excised on August, 1949, because of pain. Examination of a section of the eye showed a massive retinal hæmorrhage that had ruptured into the subretinal space. There was evidence of other retinal hæmorrhages with cholesterol crystals, fibrosis, bladder cells and new-vessel formation. In addition there was a chronic panuveitis.

Dystrophia Epiphysalis Punctata.

The last specimen was the eye of a fœtus which, in addition to that in the eye, showed other evidence of *dystrophia epiphysalis punctata*. The eye was microphthalmic and the lens contained extensive cortical cataract.

VICTORIAN BRANCH NEWS.

THE following results of the ballot for the 1950 Council are published at the request of the Medical Secretary of the Victorian Branch.

Place.	Name.	Number of Votes.
1.	Hurley, Victor	671
2.	Southby, Robert	657
3.	Norris, F. Kingsley	656
4.	James, H. Maxwell	650
5.	Johnston, Leonard W.	643
6.	MacCallum, Professor P.	640
7.	Furnell, H. G.	622
8.	Brown, Arthur	612
9.	Dale, John	609
10.	Lindell, J. H.	597
11.	Byrne, Charles	579
12.	Thomas, Douglas	575
13.	Hallam, K. H.	519
14.	Rank, B. K.	460
15.	Kent Hughes, M. O.	392
16.	Cordner, Donald	383
17.	Millikan, H. R.	241
	Informal votes	2

Between the closing time for nominations and the counting of the ballot, Dr. Douglas Thomas was appointed a trustee of the Medical Society of Victoria.

Medical Practice.

THE COMPOSITION OF HEADS OF MATCHES.

THE following letter has been received by the Secretary of the Victorian Branch of the British Medical Association and is published at his request.

Sir: We receive quite a large number of telephone calls from medical practitioners who have been called on to treat children who have eaten the heads off matches. These inquiries have become rather more frequent since we have put coloured heads on our safety matches. The usual inquiry is whether there is any phosphorus in the heads of matches, and, if not, whether there is any other poisonous chemical. Occasionally the query relates to children licking the striking surface.

In view of the widespread misapprehension on this subject, and in order to save doctors and parents unnecessary alarm and worry, we suggest that you publish in your official journal the following facts about the chemicals used in matches.

1. There is no phosphorus in the heads of matches. The main chemical is potassium chlorate, which in the safety match is mixed with smaller amounts of glue, sulphur, inert filling materials like powdered silica and

asbestine, and a very small amount of an aniline dye. Potassium chlorate is harmless in the quantities liable to be absorbed by children who eat the heads of matches. In the heads of 60 matches, there is only about 0·5 gramme of this chemical. Of the other ingredients, glue, sulphur, silica and asbestine are not harmful, and the dyestuffs used are of the quality used in foodstuffs.

The heads of wax matches contain the same ingredients as those of safety matches with the addition of a non-poisonous compound of phosphorus and sulphur. It is over 50 years since the poisonous white phosphorus was used in these "strike-anywhere" compositions.

2. The striking surface on match boxes contains phosphorus, not the poisonous white phosphorus, but an allotropic modification known as red or amorphous phosphorus. This is non-poisonous, and passes through the alimentary tract unchanged. The other ingredients of the paint are also quite harmless.

We trust that the foregoing information will be of assistance to your members, and should any further particulars be required, we shall be pleased to make them available to you.

Yours faithfully,

BRYANT & MAY PTY. LTD.
(Signed) G. M. JOSHUA,
Director.

560 Church Street,
Richmond,
Victoria.
December 2, 1949.

POLICE OFFENCES (AMENDMENT) ACT, 1908, AS AMENDED.

THE following proclamation appeared in the *Government Gazette of the State of New South Wales*, Number 223, of December 9, 1949.

I, Lieutenant-General John Northcott, Companion of the Most Honourable Order of the Bath, Member of the Royal Victorian Order, Governor of the State of New South Wales and its Dependencies, in the Commonwealth of Australia, with the advice of the Executive Council, do, by this my Proclamation, declare that Part VI of the Police Offences (Amendment) Act, 1908, as amended, shall apply to:

Indian Hemp (Cannabis), including any portion of the plants of the genus Cannabis from which the resins have not been extracted, and any resin, extract, tincture, preparation or admixture of such plants, but excluding seeds incapable of germination; and

Dihydromorphinone, known as Dilaudid or other trade name, and any preparation, admixture, extract or other substance containing not less than one-fifth per centum of Dilaudid;

in the same manner as it applies to the drugs mentioned in paragraph (a) of subsection (2) of section 18 of the said Act.

That part of the Proclamation published in Government Gazette No. 65 of the 18th June, 1948, relating to Indian Hemp (Cannabis Indica) is hereby repealed.

Signed and sealed at Sydney, this twenty-third day of November, 1949.

By His Excellency's Command,

C. H. MATTHEWS.

Congress Notes.

AUSTRALASIAN MEDICAL CONGRESS (BRITISH MEDICAL ASSOCIATION).

THE Executive Committee of the Seventh Session of the Australasian Medical Congress (British Medical Association), to be held at Brisbane, Queensland, from May 27 to June 3, 1950, has forwarded the following information for publication.

Resignations and Appointments.

Dr. C. Leggatt has resigned from the position of assistant honorary general secretary; Dr. G. A. McLean has been appointed to the position.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED DECEMBER 10, 1949.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.[2]	Australian Capital Territory.[2]	Australia.[3]
Ankylostomiasis	•	1(1)	..	..	1	..	..	..	2
Anthrax	•	..	..	..	..	..	..	..	..
Beriberi	•	•	•	•	•	•	..	•	..
Bilharziasis	•	..	..	..	..	..	..	..	..
Cerebro-spinal Meningitis	6(2)	1	2	..	1	..	..	..	10
Cholera	..	..	..	..	..	..	..	..	..
Coastal Fever(*a*)	•	•	..	•	•	•	•	•	..
Dengue	•	•	..	•	•	•	..	•	..
Diarrhœa (Infantile)	..	..	10(9)	..	..	..	..	..	10
Diphtheria	3(2)	3(2)	3(2)	..	4	..	..	..	13
Dysentery(*b*)	•	..	3(2)	..	1	..	..	..	4
Encephalitis Lethargica	..	..	1	..	..	..	..	..	1
Erysipelas	•	•	..	..	•	•	..	..	..
Filariasis	•	..	..	..	..	..	..	..	..
Helminthiasis	•	..	•	•	•	•	•	•	..
Hydatid	•	..	•	•	..	•	•	..	..
Influenza	•	•	•	..	•	•	..	•	..
Leprosy	..	..	..	..	3	..	..	..	3
Malaria(*c*)	•	(*c*)	(*c*)	(*c*)	(*c*)	(*c*)	(*c*)	(*c*)	(*c*)
Measles	•	•	•	24	•	•	..	..	24
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	5	9(1)	1	44	..	1	..	..	60
Psittacosis	•	•	..	..	•	•	•	•	..
Puerperal Fever	..	..	..	2	1	..	..	..	3
Rubella(*h*)	•	•	•	8	..	1(1)	..	..	9
Scarlet Fever	33(18)	21(10)	7(2)	6	1	..	..	..	68
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	•	..	2	•	•	•	•	•	2
Trachoma	•	..	•	•	•	•	•	•	..
Tuberculosis(*d*)	25(19)	29(15)	9(5)	3	5	2	..	..	73
Typhoid Fever(*e*)	1	..	1(1)	..	..	..	..	..	2
Typhus (Endemic)(*f*)	..	..	1	..	2	..	..	..	3
Undulant Fever	..	..	..	..	..	..	..	..	..
Weil's Disease(*g*)	•	•	•	•	•	•	•	•	..
Whooping Cough	•	•	•	27	•	•	..	..	27
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] The form of this table is taken from the *Official Year Book of the Commonwealth of Australia*, Number 36, 1944–1945. Figures in parentheses are those for the metropolitan area.
[2] Figures not available.
[3] Figures incomplete owing to absence of returns from Northern Territory and Australian Capital Territory.
• Not notifiable.
(*a*) Includes "Mossman" and "Sarina" fevers. (*b*) Includes amœbic and bacillary. (*c*) Statistics inexact with varying practice with regard to relapses in Service cases infected overseas. (*d*) Includes all forms except in Northern Territory, where only pulmonary tuberculosis is notifiable. (*e*) Includes enteric fever, paratyphoid fevers and other Salmonella infections. (*f*) Cases reported include scrub, murine and tick typhus. (*g*) Includes leptospiroses, Weil's and para-Weil's disease. (*h*) Notifiable disease in Queensland in females aged over fourteen years.

Dr. F. H. Beare has been appointed Vice-President of the Section of Medicine in place of Dr. K. S. Hetzel, who resigned.

The resignation of Dr. D. W. L. Parker from the position of Vice-President of the Section of Orthopædics and Physical Medicine has been accepted.

The Ophthalmological Society of Australia (British Medical Association).

As the Ophthalmological Society of Australia (British Medical Association) is holding its tenth annual general meeting in Brisbane during congress week, it was agreed, with the consent of the Editor of THE MEDICAL JOURNAL OF AUSTRALIA, that papers delivered before the Section of Ophthalmology will be available to the society for publication in their *Transactions*. It was also agreed that mention be made in the handbook and programme of the Ophthalmological Society's annual meeting in conjunction with any mention of the Section of Ophthalmology.

Academic Dress.

Academic dress is traditionally worn at four of the functions of congress week—at the church services, the President's reception, the inaugural meeting and the public lecture. The following information has been received from the honorary (local) secretary, New South Wales:

The Buttonhole Fancy Costume Company, of 116 Liverpool Street, Sydney, has a limited number of gowns, about 25, and some M.B. and B.S. hoods. The cost of hiring them is quoted as 15s. per fortnight. The firm would need a good deal of notice, as it is anxious not to clash with any function at the University of Sydney where the gowns may be needed.

The Medical Secretary of the Victorian Branch (Dr. C. H. Dickson) has supplied the following information. The University Union has a certain amount of academic dress, but only one scarlet M.D. gown, four master's gowns and about fifty bachelor's gowns. It has no hoods for degrees of other universities. It may be possible for graduates to hire gowns and hoods upon individual application.

Mr. Bredon (David Lack and Sons), 316 Elizabeth Street, Melbourne, has details of the different patterns and colours of hoods of British universities, and is willing to make to order.

Locum Tenens.

Doctors who would like to act as *locum tenens* for doctors in Queensland attending congress, and so have a pleasant change of climate, will be interested to know that provision exists for temporary registration, which can be arranged at very short notice.

Overseas Visitors.

It is hoped that several prominent doctors from overseas will be present at congress. Their names will be published when it is certain that they are coming.

Accommodation.

In spite of explanations which have been published in previous issues of this journal, doctors are still writing direct to the various hotels asking for accommodation, with the result that their requests are passed on to the congress office and delay occurs. Members are again reminded that in order to secure accommodation during congress week they should obtain a membership form from their local honorary secretary and forward this form when completed through their local honorary secretary or direct to the Congress Office, British Medical Association House, 225 Wickham Terrace, Brisbane. Accommodation will then be arranged as nearly as possible to the requirements stated on the form.

Transport.

Intending members of congress should keep in mind the possibility of forming groups for the purpose of chartering motor coaches or planes. Honorary local secretaries will help them in this matter.

Local Honorary Secretaries.

The local honorary secretaries in the several States and in New Zealand are as follows: *New South Wales*, Dr. Selwyn G. Nelson, 233 Macquarie Street, Sydney; *Victoria*, Dr. Leonard H. Ball, Medical Society Hall, 426 Albert Street, East Melbourne; *South Australia*, Dr. Neville P. Wilson, 178 North Terrace, Adelaide; *Western Australia*, Dr. Ross Robinson, 205 Saint George's Terrace, Perth; *Tasmania*, Dr. R. A. Lewis, 2 Mawhera Avenue, Sandy Bay, Hobart; *New Zealand*, Mr. G. Lee, General Secretary, New Zealand Branch of the British Medical Association, Wellington.

Obituary.

FERDINAND MARCEL TIPPELT.

WE regret to announce the death of Dr. Ferdinand Marcel Tippelt, which occurred on December 6, 1949, at Quorn, South Australia.

Diary for the Month.

JAN. 4.—Western Australian Branch, B.M.A.: Council Meeting.
JAN. 9.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JAN. 10.—New South Wales Branch, B.M.A.: Council Quarterly.
JAN. 12.—South Australian Branch, B.M.A.: Council Meeting.
JAN. 14.—Queensland Branch, B.M.A.: Council Meeting.
JAN. 16.—Federal Council of the B.M.A. in Australia: Meeting in Melbourne.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135 Macquarie Street, Sydney): Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester United Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178 North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

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VOL. II.—36TH YEAR. SYDNEY, SATURDAY, DECEMBER 31, 1949. No. 27.

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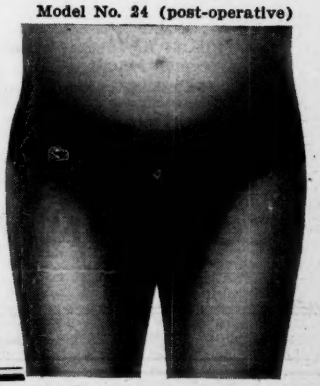
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